## Sample Research Topic Brief: Emergency Contraception Options
(updated October 2015)

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<td><strong>Introduction</strong></td>
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| **Overview/definition of topic** | • In the United States, approximately half (51%) of pregnancies are unintended.¹  
• Emergency contraception (EC), or postcoital (after sex) contraception, can prevent pregnancy after unprotected or insufficiently protected sex.  
• There are three forms of emergency contraception available in the U.S.: two oral formulations — ulipristal acetate (30 mg) and levonorgestrel (1.5 mg) — and the Copper IUD. Emergency contraception pills are the most common form of EC; the levonorgestrel (LNG) regimen can be taken up to 120 hours (with reduced efficacy after 72 hours) after unprotected sex and the ulipristal acetate (UPA) regimen can be taken up to 120 hours after unprotected sex. The Copper IUD can be inserted within five days after unprotected sex.²  
• Oral emergency contraceptive pills can reduce the risk of pregnancy after each act of unprotected sex; the Copper Intrauterine Device (IUD) can be used as EC after an act of unprotected sex and then as ongoing contraception. |
| **Relevance to patient-centered outcomes** | • Emergency contraception provides opportunity for prevention of unintended pregnancy after sex — especially in instances of sexual assault, contraceptive failure, and contraceptive non-use — and for initiation of ongoing effective contraception for those women who desire it. Some women may also use EC pills as their primary form of contraception, especially if they have sex infrequently. In all instances, understanding the available EC method options is essential.  
• Determining which EC method is best for each woman depends on multiple factors, including efficacy, side effects, cost, accessibility, and desire for ongoing contraception.  
• Emergency contraception is safe and has few associated side effects; it provides the benefit of prevention of unintended pregnancy.  
• Ongoing pregnancy is associated with further health interventions that may carry health risks, increased health care utilization, and additional costs for patients and/or the health care system. |
| **Public Health Burden** | |
| **Recent prevalence in populations and subpopulations** | Prevalence of emergency contraceptive pill use in the United States  
• In the U.S., about one in nine (11% or 5.8 million) sexually experienced women aged 15–44 used EC pills in 2006–2010, up from 4.2% in 2002 and less than 1% in 1995. Most women who had ever used oral EC used it once (59%) or twice (24%); 17% had used it three or more times.³  
• Having ever used EC pills was most common among young adult women aged 20–24 (23%), women who have never married (19%), Hispanic (11%) or non-Hispanic white women (11%), and increased with educational attainment. Among women who had ever used EC pills, almost half reported using it due to fear of method failure (45%) and half reported use due to unprotected sex (49%).³  
• From 2006–2010, 22% of women aged 15–19 had ever used EC pills, up |
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| Prevalence of Copper IUD use as emergency contraception | - The Copper IUD as EC is underutilized compared to EC pills due to limited on-site availability of the device, challenges in providing same-day IUD insertion, and reimbursement barriers. Lack of provider or patient awareness, cost, convenience, and patient desire to use the Copper IUD as EC can influence use of this method.  
- Among a sample of contraceptive providers, the vast majority (85%) had never mentioned the Copper IUD as a method of EC to patients.  
- At one urban practice, 11.0% of EC clients received a Copper IUD when same-day provision was offered. Research among several Planned Parenthood affiliates has found Copper IUD for emergency contraception uptake to be between 1 and 16% among EC clients. |
| Effects on patients’ quality of life, morbidity, mortality, use of health care services | - An option for contraception after sex allows women greater autonomy to prevent pregnancy in cases of sexual assault, contraceptive failure, or non-use.  
- Effective EC provides protection against unintended pregnancy, which increases use of the health care system and may impact health outcomes and quality of life. |
| Options for Addressing the Issue | **Efficacy**  
**LNG:**  
- Levonorgestrel (LNG) EC pills are effective when taken within the first 72 hours after unprotected sex but may remain moderately effective up to 5 days after sex; effectiveness decreased over time.  
- Pregnancy rate after LNG EC pills use is approximately 2%9,10; however, efficacy may be affected by a woman’s weight and/or BMI and pregnancy rates stratified by BMI status range from 1.4% to 6%.11  
**UPA:**  
- Ulipristal acetate (UPA) EC pills are effective up to 120 hours after sex with no decreased efficacy in that window.9,12  
- Pregnancy rate after UPA EC use is 1.9%12; however, efficacy may also be affected by weight and/or BMI.  
**IUD:**  
- The Copper IUD is effective EC for up to five days, and in some studies, through 10 days after unprotected sex, and can remain in place as ongoing contraception for 10-12 years.9 It can be inserted at any point in the menstrual cycle as long as pregnancy is ruled out.13  
- The Copper IUD is the most effective form of EC with a pregnancy rate of 0.09%.2  
- The levonorgestrel-releasing IUD is currently under investigation for efficacy as emergency contraception.9  
**Weight/BMI:**  
- LNG EC pills may be less effective in women who are overweight or obese |
and UPA EC pills may be less effective in obese women. However, no research has been sufficiently powered to establish a threshold weight at which oral EC would be ineffective.9

- While some data show that the pregnancy rate among women who took LNG EC pills was significantly associated with higher weight and BMI11, other data from World Health Organization trials found no association between weight and pregnancy rate.2

- Some studies suggest a significant increase in pregnancies among obese women who take UPA EC pills as compared with non-obese women.12 Among obese women, the pregnancy rate was lower among those who took UPA than those who took LNG EC pills.2

- The efficacy of the Copper IUD for EC is not affected by weight or BMI.9

- Though EC pills are effective at reducing the risk of pregnancy after an act of unprotected sex, EC has not been effective at reducing unintended pregnancy at a population level because EC pills are not used every time they are needed.2 The lack of population-level effects should not negate the importance of EC pills as an individual-level treatment option to reduce the risk of pregnancy.

### Safety

**LNG & UPA:**

- There are no contraindications to LNG or UPA emergency contraceptive pills nor have any deaths or serious complications been linked to LNG or UPA EC use.9 They have also been found safe for use by adolescents.14

- LNG EC exposure during ongoing pregnancy has not been linked to any adverse events for the woman or the mental or physical development of infants exposed. Further, there is no increased risk in ectopic pregnancy after LNG EC use. Limited data on UPA EC exposure during ongoing pregnancy shows no teratogenic effects.2,9

**IUD:**

- The Copper IUD is safe to use as EC and ongoing contraception for most women, including adolescents. There are few contraindications for use.15

### Side Effects

**LNG & UPA:**

- EC pills have few associated side effects or adverse events. LNG and UPA EC pills have similar incidence of adverse effects, including headache, nausea, irregular bleeding, breast tenderness, abdominal pain, dizziness, and fatigue.9

**IUD:**

- In addition to discomfort and risks associated with Copper IUD insertion, some women may experience uterine cramping, increased duration of menstrual flow, or dysmenorrhea.9

### Options for ongoing contraception

**LNG:**

- After taking LNG EC pills, hormonal contraception can begin immediately
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<td><strong>UPA:</strong></td>
<td>(i.e. “QuickStart”); however abstinence from sex or a barrier method should be used for the first 7 days.⁹</td>
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<td>• UPA is an antiprogestin and could theoretically interact with progestins in other contraceptives, potentially reducing efficacy for both.²</td>
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<td>• There is some evidence to suggest that starting contraception at the same time as UPA EC could reduce the contraceptive effect of either method. Based on this, the FDA changed the UPA labeling to include a new warning about its use with hormonal contraceptives and a recommendation to delay initiating hormonal contraception until no sooner than 5 days after taking UPA. However, there have been no clinical studies demonstrating an increased rate of pregnancy.⁹</td>
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<td>• Therefore, many providers continue to follow The U.S. Selected Practice Recommendations for Contraceptive Use, 2013, which advises that any regular contraceptive method can be started immediately after the use of ulipristal acetate emergency contraception, but the woman should abstain from sexual intercourse or use a barrier method of contraception for 14 days or until her next menses, whichever comes first.⁹</td>
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<td><strong>IUD:</strong></td>
<td>• A Copper IUD inserted for EC can provide ongoing contraception for 10-12 years.</td>
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<td><strong>Accessibility</strong></td>
<td><strong>LNG:</strong></td>
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<td>• In the U.S., EC pills of 1.5 mg of levonorgestrel can be sold over the counter to women and men, without age restriction, for approximately $40 to $50 on average.² While insurance plans generally do not reimburse for LNG when it is sold over the counter, some will reimburse if a prescription is written.</td>
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<td>• Despite being available without age or point-of-sale restrictions, many pharmacies require that EC-seekers speak with a pharmacist or employee to access LNG EC, ask for ID, or apply minimum age requirements.¹⁶ Improved access among adolescents has been associated with increased use.¹⁴</td>
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<td><strong>UPA:</strong></td>
<td>• In the U.S., UPA EC requires a prescription, but is not widely available at pharmacies. There is an online prescription service available to help with access. UPA costs approximately $50 (in addition to any consultation fees), though many insurance plans will cover the cost.²</td>
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<td><strong>IUD:</strong></td>
<td>• Obtaining the Copper IUD for EC requires an insertion visit, which has clinical operations considerations (i.e., clinic capacity, on-site stocking of devices, and trained clinical staff) and cost considerations (i.e., high upfront costs and inadequate insurance coverage).²</td>
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<td>• Providers may not offer the Copper IUD as an option for all women due to limited awareness, clinical knowledge, or attitudes about appropriate candidates (i.e., not offering to women with no previous births).¹⁷</td>
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<td>• Though the Copper IUD is safe and appropriate for adolescents¹⁸,</td>
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<td>adolescents may face barriers accessing this method of EC due to cost or confidentiality concerns that may cause difficulties in using insurance or scheduling the insertion appointment. Additionally, providers may be less likely to recommend or offer IUDs for adolescents.</td>
<td>Knowledge and Awareness of Emergency Contraception</td>
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<td>• Several studies have demonstrated that while awareness of EC may be high among women, they may not have the necessary knowledge to access EC and use it correctly.\textsuperscript{19-21} Awareness of the Copper IUD for EC is lower.\textsuperscript{17}</td>
<td>• Knowledge and awareness of emergency contraception among adolescents is generally low.\textsuperscript{14} Recent regulatory and age limit changes may lead to increased awareness of EC methods but may also create confusion about available options.</td>
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<td>• While provider awareness is increasing, there may limited medical knowledge about EC options.\textsuperscript{19} One survey of family medicine and OBGYN providers found that 29% of providers were incorrect about the appropriate timeframe for use of LNG EC.\textsuperscript{22} Furthermore, providers may not offer the Copper IUD due to low awareness or knowledge or due to attitudes about which women are good candidates for the method.</td>
<td>• Preference for type of EC may be influenced by patient and provider knowledge. Familiarity with all methods of EC, especially prior awareness of the IUD as EC, can influence patient choice of EC method.\textsuperscript{7,23,24}</td>
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<td>• Interest in obtaining the copper IUD for EC has been reported as ranging from 13%-15% among U.S. EC patients.\textsuperscript{7,25,26} However, the associated high up-front cost is a barrier; more women were interested if offered for free.\textsuperscript{7,25,26} Other factors, such as concern for luteal phase pregnancy or patient schedule and wait times for IUD placement may also influence women's preference for the Copper IUD for EC.\textsuperscript{7}</td>
<td>• Programmatic efforts to increase accessibility of the Copper IUD as EC for those desiring it have found that uptake ranges from 1%-16% among EC clients.\textsuperscript{7,8}</td>
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<td>• One qualitative study among EC users found that patient preference for EC method type was influenced by a woman’s relationship status, method cost, and fear of side effects.\textsuperscript{17}</td>
<td>• A pilot study offering women the Copper IUD or LNG pills for EC found that patient satisfaction with method choice was significantly higher among the LNG users than Copper IUD users (95.5% were satisfied or very satisfied compared with 61.5%).\textsuperscript{27}</td>
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<td>• There is limited research on provider preferences for EC method selection. Provider attitudes that reflect misinformation and bias may influence provider preference for EC method and, therefore, patient access to information on all methods.</td>
<td>• Research on the efficacy of various EC methods for women of varying</td>
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| research contribute to achieving better patient-centered outcomes? | weight and BMI could help to ensure that women are matched to effective methods.  
- Further research on effective counseling strategies that address efficacy, cost, side effects, and other factors identified by patients would likely increase patient satisfaction with their chosen method and possibly increase future EC use when it is needed.  
- Research providing sufficient evidence to make UPA EC pills available over the counter without age restriction would improve access to a more effective method of EC that can be used up to 120 hours without reduced efficacy.  
- Research on integrating same-day Copper IUD provision for EC for interested women would ensure greater access to the most effective method of EC while also improving access to ongoing highly-effective contraception.  
- Research on the safety, efficacy, and acceptability of the LNG-releasing IUD for EC should continue to obtain another option for EC, and one that provides ongoing contraception.  
- Patient-centered outcomes research on EC for routine contraception (e.g., for those who have sex infrequently) may also be useful to explore outcomes for women who will not use other ongoing methods of contraception due to individual needs and preferences. |
| Have recent innovations made research on this topic especially compelling? | Recent concerns around reduced efficacy of LNG and UPA pills for overweight and obese women has led to inconsistent regulatory decisions and substantial confusion in clinical practice.² Robust evidence on the efficacy of EC methods among women of varying weight and BMI is needed to ensure that women are taking the most effective method for them. Increased awareness of the Copper IUD as an additional (and more effective) option for EC has increased the need for research to inform patient and provider health care decisions. |
| How widely does care now vary? | The provision of EC likely varies widely across individual providers, health care practices, pharmacies, and states.  
- Provider familiarity with EC methods can affect uptake among patients²³,²⁴ and there is variation in provider and center capacity to insert Copper IUDs for EC, depending on clinical capacity and scheduling, availability of devices, and provider knowledge, attitudes, and training.  
- Variation among pharmacies also impacts access to LNG and UPA oral EC.  
  - Though LNG EC is available over-the-counter without point-of-sale restrictions, in one survey of pharmacies, half of stores did not stock oral EC on the shelf and two-thirds of those that did kept it locked in a case or box that required employee assistance to retrieve it.¹⁶  
  - LNG EC can be purchased by men or women, regardless of age; nonetheless, some pharmacists or stores request to see ID, have minimum age requirements, or hesitate to dispense to men.¹⁶  
  - There is wide variation in cost of LNG EC, ranging from $32 to $65 for the brand-name product and $26 to $62 for the generic.²⁹  
  - Many pharmacies do not stock UPA EC pills.²⁹ However, an online prescription service for UPA EC may be helping to expand access. |
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<td>• State laws vary in regard to EC: 18 states and DC require provision of EC-related services to victims of sexual assault in emergency rooms; 9 states allow for pharmacist-dispensing of EC without prescription; 4 states require pharmacies to fill all valid prescriptions; and 1 state requires pharmacists to fill all valid prescriptions. Nine states have restrictions on EC, such as exclusion of EC methods from contraceptive coverage mandates and refusal protections for pharmacies and pharmacists.</td>
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**Considerations for disparities**

**Disparities in access**

• Given state variation in EC coverage and pharmacy practices, women in more restrictive states may have reduced access to all EC methods. These states likely have more restrictive policies for sexual and reproductive health services and education more generally; reduced access to EC may exacerbate existing health disparities.

• LNG EC is the only method that can be accessed directly from a pharmacy, without a visit to a health care provider; women living in areas with limited health services may rely more heavily on LNG EC, which is potentially less effective for some women.

**Disparities in unintended pregnancy rates**

• Evidence on the effect of weight and BMI on EC efficacy could potentially reduce unintended pregnancy rates by better matching women with a method that will be most effective for them. Lower income women and black women are more likely to be overweight or obese and more likely to have unintended pregnancies. If these subpopulations are using a method of EC that may not be effective, disparities in unintended pregnancy rates may widen.

**Is there any research underway (as indicated by ongoing trials)?**

• A search was conducted on Clinicaltrials.gov for “Emergency Contraception” and resulted in 33 relevant trials, of which 22 were completed, 7 were active or recruiting, and 4 had “Unknown” status.
  - Two of the active or recruiting studies focus on the effect of weight or BMI on EC efficacy and 2 of the active or recruiting studies assess the LNG-IUD for EC.

• A similar search was conducted on the Agency for Health Research and Quality (AHRQ) Health Services Research Project database. Of the 8 studies that were found, 6 were relevant.

• 22 projects resulted from a similar search on the National Institute of Health’s Project Reporter; 3 were relevant.

• No grants on the topic are currently being funded by PCORI.

**Evidence of importance to various stakeholder groups**

• Various health organizations have highlighted a lack of evidence on the association between weight and BMI and reduced EC efficacy.

• Regulatory bodies in the U.S., Europe, and Canada, have noted insufficient evidence to change labels in order to caution on reduced efficacy of EC pills in overweight or obese women.

• Several advocacy groups for patients and providers have called for greater EC access and for clearer guidance on efficacy of EC for overweight and obese women.
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| How likely is it that a new CER on this topic would provide better information to guide clinical decision making? | • Comparative effectiveness research on the efficacy of LNG, UPA, and the Copper IUD for EC in preventing pregnancy among women of various weights and body sizes could help guide clinical decision making for clinicians and patients.  
• Comparative effectiveness research on the side effects of EC methods may be useful to provide women with necessary information to select an EC method.  
• Comparative effectiveness research on the interaction between UPA and progestin-containing contraceptives, as well as the optimal timing for initiating progestin-containing contraceptives after using UPA, would be useful to inform clinical decision making about ongoing contraception. |
| Potential for New Information to Improve Care and Patient-Centered Outcomes | **Facilitators**                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| What are the facilitators and barriers that would affect implementation? | • There is strong desire for evidence on the efficacy of EC methods for women with higher weight and BMI among the clinical community. Multiple societies governing practice have been aware of and focused on this issue in recent years and would likely update practice guidelines given more conclusive findings.                                                                                                                                                                                                                                                                 |
|  | **Barriers**                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|  | • Visiting a health care provider is not required for all methods of EC; this presents a challenge to the medical community, which relies on clinical visits to reach and educate patients. Bypassing a provider visit also presents an opportunity to improve access beyond women who receive health care through a provider.  
• Various operational practices and policies present barriers to equal access for all emergency contraceptive methods, including: variations in state and pharmacy policies, differential insurance practices, availability of UPA through prescription only and inconsistent stocking practices, provider knowledge of or attitudes about EC methods, integrating same-day Copper IUD provision for EC into clinical practice, and substantial cost differences between EC methods. |
| How likely is it that the results of new research would be quickly implemented into practice? | • New information on the effect of weight or BMI on EC efficacy would likely be implemented into practice rapidly, as there is a stated desire for clinical guidance.  
• It is unclear whether counseling/education strategies that emphasize patient preference and satisfaction when selecting a method of EC would be implemented quickly. |
| Would new information from patient-centered CER on this topic remain current for several years? | • Research on the comparative effectiveness of EC methods would likely remain current for several years. As new EC methods are developed, rigorous comparative effectiveness research studies would need to compare the new method to existing methods. |


