

# LARCs: Why they should be first-line contraceptive options for your patients

➔ Let's improve contraceptive effectiveness in this country by increasing the use of long-acting reversible contraceptive methods. Here's a report of the Contraceptive CHOICE Project—important data about women's adoption and satisfaction with intrauterine devices and the etonogestrel implant.

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### CASE Typical use of LARC in a young woman

A 21-year-old woman with no previous pregnancies presents to her gynecologist requesting a highly effective contraceptive. After discussion of all reversible methods of contraception, the patient chooses a levonorgestrel intrauterine system (LNG-IUS). Results from a pregnancy test today are negative, and the patient reports no sexual activity since her last menstrual period. The LNG-IUS is placed without difficulty.



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The patient returns in 4 weeks for a string check and reports intermittent spotting, but no other complaints. The strings are seen, and the patient is reassured.

Six months later, she returns and reports amenorrhea, with no further spotting. She says the amenorrhea is bothersome to her and that she desires a monthly period to “confirm I’m not pregnant.” The LNG-IUS is removed easily, and a copper intrauterine device (IUD) is placed during the same visit.

At her follow-up appointment 1 month later, she reports intermittent spotting, but she is happy with the copper IUD.

Nearly half of all pregnancies in the United States are unintended, and nearly half of those will end in abortion.<sup>1</sup> The high rate of unintended pregnancy may, in part, be due to the low use of long-acting reversible contraceptive (LARC) methods, with fewer than 9% of US women using these methods.<sup>2,3</sup>

The LARC methods currently available in the United States include the LNG-IUS, the copper T380A intrauterine device (copper IUD) and the etonogestrel subdermal implant (ENG implant). The **copper IUD** (FIGURE 1, page 36) is hormone free and is approved by

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the US Food and Drug Administration for 10 years of use. The **LNG-IUS** (**FIGURE 2**) has a total of 52 mg of levonorgestrel, releases 20 µg daily, and is approved for 5 years of use. The **ENG implant** (**FIGURE 3**) is a single

**FIGURE 1** Copper IUD



**FIGURE 2** LNG-IUS



**FIGURE 3** ENG implant



4-cm x 2-mm rod, contains 68 mg of etonogestrel, and is approved for 3 years of use.

LARC methods do not require users to follow daily, weekly, or monthly regimens or to remember to use the method at each act of intercourse. Thus, the perfect and typical-use failure rates for each LARC method are nearly equal to one another.<sup>4</sup>

### Integrating evidence and experience

The Contraceptive CHOICE Project (CHOICE) has provided important data about women’s adoption and satisfaction with LARC methods when financial and access barriers are removed. CHOICE is a prospective cohort study of 9,256 women living in the St. Louis area.<sup>5</sup> Women were provided with the contraceptive method of their choice at no cost for up to 3 years. To increase participants’ awareness of LARC methods, prior to enrollment women were read a brief script that emphasized LARC effectiveness. Participants completed follow-up surveys by telephone at 3 and 6 months, and then every 6 months for the duration of study participation.

Overall, uptake of a LARC method was high among the CHOICE cohort: 46% of women chose the LNG-IUS, 12% chose the copper IUD, and 17% chose the ENG implant. Of the remaining participants, 9% chose oral contraceptive pills (OCs), 7% chose the vaginal ring, 7% chose depot medroxyprogesterone acetate (DMPA), and 2% chose the transdermal patch.<sup>6</sup>

**LARCs showed higher rates of continuation and satisfaction.** At 12 months, 86% of LARC users were continuing their method; 55% of OC, ring, patch, and DMPA users were continuing their method. In addition, 84% of LARC users were satisfied or very satisfied with their contraceptive method at 12 months, compared with 53% of non-LARC method users.<sup>7</sup>

**LARCs were more effective at preventing unplanned pregnancy.** Women who used OCs, the ring, and the patch were nearly 22 times more likely to experience a contraceptive failure than LARC users

**FAST TRACK**

LARC methods had higher continuation and satisfaction rates and were more effective at preventing unplanned pregnancy than OCs, the ring, the patch, and DMPA

(hazard ratio [HR], 21.8; 95% confidence interval [CI], 13.7–34.9).<sup>8</sup> Among women who used OCs, the ring, or the patch, the failure rate was 4.55 per 100 woman-years, versus 0.27 per 100 woman-years among participants using LARC methods. Participants younger than age 21 who used non-LARC methods had nearly twice the risk of unintended pregnancy as older women using the same methods (HR<sub>adj</sub> 1.9; 95% CI, 1.2–2.8).<sup>8</sup>

## LARC safety profile

The copper IUD, LNG-IUS, and ENG implant are safe devices with few disadvantages. The Centers for Disease Control and Prevention (CDC) US Medical Eligibility Criteria (US MEC) provide recommendations about the appropriateness of contraceptive methods for a specific individual.<sup>9</sup> The US MEC categories include:

- Category 1—no restriction on use
- Category 2—advantages of using the method generally outweigh the theoretical or proven risks
- Category 3—theoretical or proven risks usually outweigh the advantages of using the method
- Category 4—unacceptable health risk associated with use.

There are few contraindications to LARC methods. The US MEC designate IUDs and the ENG implant category 1 or 2 for most conditions, including smoking, obesity, seizure disorders, and gallbladder disease.<sup>9</sup>

**What about IUDs and PID risk?** Some clinicians are concerned that IUDs increase the risk of pelvic inflammatory disease (PID). However, the best available evidence demonstrates that there is an increase in the risk of PID only within the first 20 days following insertion; after 20 days, the risk returns to baseline.<sup>10</sup>

**Can IUD use affect fertility?** Some clinicians still have residual concerns about the effect of IUDs on fertility. Based on the best evidence available, the IUD is not associated with an increased risk of tubal infertility after controlling for previous chlamydial infection.<sup>11</sup>

## Key takeaways

- LARCs are highly effective and safe.
- LARCs are cost-effective.
- LARCs are far more effective than oral contraceptive pills, the transdermal patch, the vaginal ring, and barrier methods.
- LARCs are appropriate and important for young and nulliparous women.
- LARCs should be considered first-line options for most women in need of contraception.

### Is IUD use in young, nulliparous women still a concern?

Although health-care providers may be concerned about the use of IUDs in nulliparous and adolescent women,<sup>12,13</sup> IUDs have been shown to be **safe and effective in nulliparous women**, with equivalently high continuation rates compared with multiparous women.<sup>14</sup> The US MEC categorize both the LNG-IUS and the copper IUD as category 2 in nulliparous women.<sup>9</sup> The ENG implant is category 1 in nulliparous women.<sup>9</sup>

LARC methods have been shown to be **safe and effective in adolescents**—with their use in this population endorsed by the American College of Obstetricians and Gynecologists and the CDC.<sup>10</sup> Data from CHOICE demonstrate equivalent (no statistical significance) LARC continuation rates at 1 year for women aged 14 to 19 years (81%) and older than 25 years (86%).<sup>15</sup> IUDs are classified as category 2 in adolescents, and the ENG implant is category 1 among this age group.<sup>9</sup>

### Contraindications to the IUD

There are very few absolute contraindications to IUD use. Contraindications include<sup>16</sup>:

- pregnancy (suspected or known; see “How to rule out pregnancy prior to LARC insertion” on page 40)
- recent history (within the past 3 months) of PID or upper genital tract infection
- current infection with either *Chlamydia trachomatis* or *Neisseria gonorrhoea*
- mucopurulent cervicitis
- recent history of septic pregnancy



**IUDs have few contraindications and short-term PID risk, and evidence shows they are safe and effective in adolescents and nulliparous women**

- postpartum or postabortal endometritis
- conditions that distort the uterine cavity, such as congenital malformations or uterine leiomyoma
- abnormal vaginal bleeding
- cervical or endometrial cancer
- malignant gestational trophoblastic disease.

Specific to the LNG-IUS, current or prior breast cancer, severe cirrhosis, hepatocellular adenoma, and malignant hepatoma are all category 3.

### Preinsertion STI screening

The manufacturers of both types of IUDs recommend preinsertion screening for sexually transmitted infections (STIs) based on a woman's risk factors.<sup>17,18</sup> According to the US Preventive Services Task Force and the CDC, those who should be screened include<sup>19,20</sup>:

- women aged 25 years and younger
- those with risk factors, including a new sexual partner, more than one sexual partner, or a history of STI.

Screening for STIs can be performed at the same visit as the IUD insertion. **If the woman tests positive for either *C trachomatis* or *N gonorrhoeae* at the time of insertion, the IUD should not be removed;** the patient should be treated appropriately and monitored for signs and symptoms of PID.<sup>9</sup>

### The IUD: Use it for emergency contraception and postabortion

**Emergency contraception.** The copper IUD can be used for emergency contraception within 5 days of unprotected intercourse and can reduce unintended pregnancy by more than 99%.<sup>21</sup> Unfortunately, most clinicians are not utilizing or considering the copper IUD for emergency contraception. In a recent 2012 survey of clinicians in California, 87% had never recommended the copper IUD for emergency contraception. This finding was despite the fact that 93% of the clinicians were skilled at IUD insertion.<sup>22</sup>

**Postabortion.** It is safe to place an IUD following an abortion. The US MEC do not have any restrictions on IUD placement

post-uterine aspiration.<sup>9</sup> It has been shown that women who have immediate postabortion insertion of an IUD are three times less likely to have a repeat abortion in the following 3 years than women who utilized another contraceptive method postabortion.<sup>23</sup>

### Advantages of LARCs

**Cancer protection.** IUDs, in general, reduce the risk of **endometrial cancer**.<sup>24</sup> This has been shown to be true for both inert and copper IUDs. Given the release of progestin with the LNG-IUS, endometrial protection may be even more profound.

In a pooled analysis of 26 studies, the IUD was also found to potentially reduce the risk of **cervical cancer**.<sup>25</sup>

**The LNG-IUS can improve symptoms of menorrhagia, adenomyosis, endometriosis, and leiomyomas.** It can be used to treat anemia secondary to heavy menstrual bleeding. Additionally, the LNG-IUS protects the endometrium from the effects of tamoxifen treatment.<sup>24</sup>

**Cost-effectiveness.** Many women desiring "hormone-free," yet highly-effective contraception, will embrace the copper IUD. The **copper IUD** is also highly cost-effective. The cost-effectiveness of using the copper IUD is apparent at 1 year and, by 5 years, it is the most cost-effective contraceptive available today.<sup>26</sup> The LNG-IUS and ENG implant are also highly cost-effective.

**The ENG implant has been shown to improve dysmenorrhea and acne,** and as with all LARC methods, patients have subsequent rapid return to fertility upon device removal.<sup>27</sup> The implant is easily inserted in the arm using local anesthesia; thus, adolescents can avoid a pelvic examination, which they may experience as anxiety-provoking and possibly painful.<sup>14</sup>

### Disadvantages of LARC methods

Despite the cost-effectiveness of LARC methods, they have a **high initial up-front cost**. The price of LARC devices ranges



The IUD is a good option for emergency contraception and postabortion

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## How to rule out pregnancy prior to LARC insertion

Pregnancy can be reasonably ruled out if the patient has no signs or symptoms of pregnancy and<sup>1</sup>:

- is within 1 week after starting her menses
- has not had sexual intercourse since her last menses
- has been using, consistently and correctly, a reliable method of contraception
- is within the first week following a spontaneous or induced abortion
- is within 1 month postpartum, or
- is fully breastfeeding, amenorrheic, and less than 6 months postpartum.

Consider offering emergency contraception if the patient has had recent intercourse. Long-acting reversible contraceptive (LARC) devices should not be started if you are not sure if the patient is pregnant. If unsure, a repeat pregnancy test in 2 to 4 weeks is recommended.

The risks of waiting to start contraception should be weighed against the risks of starting a contraceptive method in a woman who may already be pregnant. The risk of adverse outcomes, including congenital anomalies, neonatal or infant death, or developmental abnormalities is not increased among infants exposed to oral contraceptive pills (OCs) or depot medroxyprogesterone acetate (DMPA).<sup>2</sup> In contrast, the risk for spontaneous abortion, preterm delivery, and chorioamnionitis is increased in women using an intrauterine device.<sup>3</sup>

If pregnancy cannot be ruled out and the patient desires a LARC method, offer the patient a “bridge,” using a method of birth control such as OCs or DMPA until pregnancy can be effectively ruled out in 2 to 4 weeks.<sup>1</sup>

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between \$500 and \$700, not including the costs associated with insertion. For patients who are uninsured or who do not have coverage for contraception, this cost may be unaffordable. Health-care providers may find it financially challenging to purchase the devices and then wait for reimbursement from insurance companies.

**Uterine perforation.** There is a small risk (approximately 1.9-3.6 per 1,000 IUD insertions) of uterine perforation at the time of IUD insertion.<sup>28</sup> Despite the common belief among clinicians that ectopic pregnancy is common in women with IUDs, the rate of

ectopic pregnancy is much lower in women using the IUD than in women not using contraception.<sup>29</sup> However, if a pregnancy should occur in a woman with an IUD in place, an ectopic pregnancy must be ruled out.

**IUD adverse effects.** Changes in bleeding patterns are the most common side effect following IUD insertion. Almost all women with the LNG-IUS (98%) will experience bleeding irregularities. Most women will have irregular bleeding and spotting, which is greatest in the initial 3 to 6 months and usually improves over time. Approximately 20% of women will become amenorrheic 1 year after insertion, and 50% will become amenorrheic after 5 years.<sup>30</sup> The copper IUD can cause increased menstrual flow and dysmenorrhea; these side effects typically decrease over time.<sup>31</sup>

**ENG implant adverse effects.** The most common side effect is **irregular or unpredictable bleeding**, which can range from amenorrhea to daily vaginal spotting or heavy bleeding.<sup>27</sup> Irregular bleeding is the main reason for implant discontinuation. An analysis of 11 international trials found that 11.3% of women discontinued the implant early due to bleeding abnormalities. The number of days of bleeding was similar to that in a normal cycle; however, the pattern was unpredictable.<sup>32</sup> Studies have examined possible treatment options in women with progestin-only methods including combinations of misoprostol, doxycycline, and ethinyl estradiol without definitive conclusions.<sup>33</sup>

Other less common side effects with the ENG implant include headache, weight gain, acne, depression, and emotional lability.<sup>27</sup>

## Pearls from the Contraceptive CHOICE Project

**Misoprostol for the difficult IUD insertion.** Studies have shown that there is no benefit to routine use of misoprostol for cervical ripening prior to IUD insertion<sup>34,35</sup>; however, misoprostol can be a valuable adjunct in the case of a difficult IUD insertion. In cases in which previous IUD insertion has been unsuccessful due to a stenotic os, 400 µg of

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misoprostol can be inserted by the patient vaginally the night before the procedure.

In addition, paracervical block with 1% lidocaine may be used if the patient has significant discomfort or if cervical dilation is required. In a randomized controlled trial comparing no local anesthetic with 1% lidocaine paracervical block, investigators found that women who received the paracervical block had lower pain scores, although the difference was not statistically significant.<sup>37</sup>

**Tips to manage abnormal bleeding**

**ENG implant.** Abnormal bleeding experienced with the ENG implant can be managed in several ways. A systematic review found that the most common management is for the 3-month use of **daily OCs** for 21 days, followed by a 7-day break.<sup>38</sup>

Other options include **high-dose cyclical progesterone** for up to 3 months (medroxyprogesterone acetate 10 mg orally twice per day or norethindrone 5 mg orally twice daily for 21 days with a 7-day break), oral **progestin-only pills** taken daily for up to 3 months, and **nonsteroidal anti-inflammatory drugs** taken daily for 5 to 10 days.<sup>38</sup>

**LNG-IUS.** Abnormal bleeding experienced with the LNG-IUS can be treated with **naproxen** 500 mg orally twice per day for 5 days.<sup>39</sup>

**Conclusions**

LARC methods are safe and effective, and should be considered first-line options for women of all ages seeking contraception. LARC methods are more effective than OCs, the patch, or the ring and should be the first-line choice for contraceptive options. LARC methods should be encouraged and promoted by clinicians; they are safe, highly effective in preventing pregnancy, cost-effective, and have a wide range of noncontraceptive health benefits.

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**LARC methods are more effective than OCs, the patch, or the ring and their use “should be encouraged and promoted by clinicians”**

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