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# How NPs can eliminate practice barriers to intrauterine device use

Abstract: Barriers to intrauterine device use include cost, absence of qualified providers, the lack of simplified insertion protocols, cultural hesitation, and misconceptions of appropriateness of use. This article outlines how NPs can eliminate practice barriers to intrauterine device use and prevent unintended pregnancy.

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he more effective a contraceptive method is, often, the more difficult it is for women to obtain it. For this reason, clinicians must familiarize themselves with the health benefits of intrauterine devices (IUDs) and remove barriers to this safe and effective contraceptive method. This article will discuss the importance of being able to access effective and safe contraception in order to avoid unintended pregnancy and address the misconceptions and barriers to use of IUDs, a highly effective, long-acting, and reversible contraception method with high satisfaction. This is an option that should be offered and monitored in primary care offices offering gynecologic care and in reproductive/ sexual health practices.

## Background and significance

Nearly 5% of reproductive-age women have an unintended pregnancy every year.<sup>1</sup> Of the 6 million annual pregnancies in the US, 45%-51% are unintended. Unintended pregnancy rates are highest among low-income women, women of color, and women ages 18-24.<sup>2</sup> Though birth rates for women under age 30 are declining, the rate of unintended pregnancies in the US remains higher than in many other developed countries.<sup>3,4</sup> A goal of Healthy People 2030 is to decrease the proportion of unintended pregnancies from 43% to 36.5%.<sup>5</sup>

The COVID-19 pandemic has also increased challenges associated with contraception access and use. Almost 50% of women reported difficulties accessing reproductive healthcare because clinics were closed, shelter-in-place orders limited movement, and child-care/ household responsibilities increased.6 Women who live in poverty, experience housing and/or food insecurity, and have limited access to transportation reported a decreased desire for pregnancy during the pandemic but an even greater difficulty accessing contraception.<sup>6</sup> Populations already at a social or economic disadvantage have experienced an even greater impact on reproductive autonomy, exacerbating structural inequalities.6

Keywords: intrauterine devices, intrauterine systems, misconceptions, practice barriers

# Proportion of users experiencing unintended pregnancy within first year of use<sup>7</sup>

Spermicides	28%
Female condom	21%
Male condom	13%
Combined oral contraceptives and progestin-only pill	7%
Topical patch	7%
Vaginal ring	7%
Injectable	4%
Copper IUD (LARC method)	0.8%
LNG-IUD (LARC method)	0.1%-0.4%
Subcutaneous implant (LARC method)	0.1%

Contraceptive methods available to US women include over-the-counter condoms and spermicides, which are easiest to obtain but least effective with typical use, and oral pills, topical patches, and vaginal rings, which are more effective but require a prescription and still have a relatively high typical-use failure rate. The most effective options require at least one office visit and include: injectable, implant, and IUD methods (see *Proportion of users experiencing unintended pregnancy within first year of use*).<sup>7</sup>

IUDs and subcutaneous contraceptive implants are examples of highly effective, long-acting reversible contraceptive (LARC) methods. Thirty-nine million women in the US use contraception to prevent pregnancy, and only 10% use IUDs.<sup>8</sup> Despite increased use of more effective contraception in the country, women ages 18-24 have the highest rates of unplanned pregnancy and rely on condoms or oral contraceptives much more often than IUDs.<sup>3,9</sup> Rates of unintended pregnancy are highest among lower-income individuals who begin childbearing earlier in life, but LARC use in this demographic is lower in the US than in other developed countries. According to the CDC's Pregnancy Risk Assessment Monitoring System, 45% of adolescents ages 15-19 with an unintended pregnancy who had given birth attempted to use effective methods of contraception, suggesting a struggle with adherence.1 The failure rate for pills, patches, and rings is 4.55 per 100 patientyears, and only 0.27 per 100 patient-years for IUDs and implants.10

### Structural racism awareness

Structural racism occurs when systems have been designed or evolve to create a mechanism of exclusion or oppression of some populations while benefiting others. These systems restrict opportunities for upward mobility and produce disparities in education, housing, employment, income, media, criminal justice, and the opportunity to be healthy.<sup>11,12</sup> The Future of Nursing 2020-2030 report emphasizes the importance of recognizing and addressing the systemic changes needed to promote health equity and address the systemic factors producing these disparities.13 There is greater fear and distrust about clinician-controlled contraception among historically marginalized groups because of the national history of coercive sterilization, contraception, and legislation requiring contraception for access to social services.<sup>14</sup> It is important to be sensitive to historical and current oppression, both individual and systematic, when discussing contraception and to provide relationship-centered care that recognizes and acknowledges the history of coercive practices, experimentation, eugenics, and interventions without consent that historically marginalized people with childbearing potential have experienced as recently as the 1980s in this country.14,15 It is essential to develop empathy and sensitivity to the manner and timing of these discussions ensuring that there is respect for the patient's right to decline the option in a safe and nonjudgmental atmosphere.<sup>15</sup>

### IUD indications and mechanisms of action

IUDs may be used as planned contraception, including immediately postpartum or postabortion (for most devices), and as emergency contraception, although they aren't FDA-approved for this indication.<sup>16</sup> They are effective for 3 to 10 years, depending on the type and brand used. They may be removed at any time with a quick return to fertility.<sup>17,18</sup> Both levonorgestrel-releasing-IUDs (LNG-IUDs) and copper IUDs have few contraindications and can often be safely used when other methods should not, including in patients who smoke or have hypertension (see *IUD contraindications*).

### Hormonal IUD

The LNG-IUD releases a small amount of the hormone progestin into the uterus each day. It prevents pregnancy through a combination of several actions: a) preventing ovulation, b) altering tubal transport of ova and/or sperm, thereby preventing fertilization,

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IUD contraindications	
Contraindications to LNG-IUD	Contraindications to copper IUD
Pregnancy	Pregnancy
Acute cervicitis or vaginitis	Acute cervicitis or vaginitis
Current pelvic inflammatory disease	Current pelvic inflammatory disease
Current cervical or endometrial cancer	Current cervical or endometrial cancer
Current breast cancer	
Hepatic tumors	
Severe liver disease	
Pelvic tuberculosis	
Undiagnosed uterine bleeding	Undiagnosed uterine bleeding
Pelvic sepsis/infected abortion <3 months prior	Pelvic sepsis/infected abortion <3 months prior
Allergy to levonorgestrel	Allergy to copper
Postpartum endometritis <3 months prior	Postpartum endometritis <3 months prior
Distortion of the uterine cavity	Distortion of the uterine cavity
	Wilson disease

Note: Not a complete list of all possible contraindications. Refer to drug package inserts and relevant guidelines for further details

and c) altering the endometrium, thereby preventing implantation. It also thickens the cervical mucus, which helps prevent sperm from entering the uterus.

NPs should explain postinsertion irregular bleeding as a process of the contraception method rather than an untoward effect of the LNG-IUD.<sup>19</sup> The unscheduled spotting and light irregular bleeding usually resolves in 3-6 months, and 20% of women become amenorrheic after 1 year of use, and 50% after 2 years of use. Like oral contraceptive pills, the LNG-IUD may cause temporary breast tenderness, headache, acne, and mood swings as a very small amount of hormone is absorbed systemically. Other potential adverse reactions include ectopic pregnancy, infection, pelvic inflammatory disease (PID), perforation, expulsion, and ovarian cysts.<sup>17</sup>

### Nonhormonal IUD

The copper T380A IUD is a T-shaped plastic device with copper wire coiled around it, which causes sperm toxicity and inhibits motility so that sperm rarely reach the fallopian tube and are unable to fertilize the ovum.<sup>20</sup> Experimental evidence suggests that copper IUDs do not routinely work after fertilization has occurred and therefore, are not considered abortifacients.<sup>20</sup> Potential adverse reactions of copper IUDs include infection, ectopic pregnancy, PID, endometritis, embedment, perforation, expulsion, and heavier and longer menstrual cycles with intermenstrual spotting.<sup>21</sup>

### Postpartum and postabortion LARC use

IUDs are effective in reducing unplanned when inserted immediately postpartum.<sup>22</sup> IUDs can be placed postdelivery at any point after the placenta is expelled and before the patient is discharged or outpatient at any point in the postpartum recovery period. As many as 40%-57% of women report having unprotected intercourse before their scheduled postpartum visit, and approximately 70% of pregnancies occurring in the first year after delivery are unintended.<sup>22</sup> Additionally, between 40% and 75% of women who plan to use an IUD do not obtain it at their postpartum visit due to inability to pay, clinicians not offering LARC, or need for a return visit for placement.<sup>22</sup>

A retrospective analytical study in India of 1,193 women with immediate postpartum IUD insertion

found no cases of perforation or pregnancy and good patient satisfaction.<sup>23</sup> Spontaneous expulsion was 6.4% and higher in vaginal insertions versus intracesarean insertions (P = .042). A meta-analysis found that expulsion rates associated with immediate placement after vaginal delivery was significantly higher for LNG-IUDs compared with copper IUDs.<sup>24</sup> Discussing the risks associated with the timing of IUD placement allows shared decision-making based on the patient's individual concerns and preferences.

A study to evaluate clinical outcomes of early versus delayed copper IUD insertion following medical abortion found no significant difference in safety, satisfaction, or continuity rates at 6 months.<sup>25</sup>

### **Emergency contraception**

In the US, ever-use of emergency contraception increased from 0.8% in 1995 to 20% in 2011-2015, and between 2011 and 2015, there was a large increase in

### Noncontraceptive use of IUDs

The LNG-IUD can be used to treat heavy menstrual bleeding for up to 5 years due to the thinning effect of levonorgestrel on the endometrium.<sup>17</sup> One LNG-IUD (Mirena) is FDA-approved for this indication. It has added benefits of protecting the endometrium from hyperplasia, which may be beneficial for patients with endometriosis or polycystic ovarian syndrome, and reducing dysmenorrhea.<sup>29</sup> LNG-IUD can be useful in achieving amenorrhea in individuals who may wish to stop menstrual bleeding including transgender or nonbinary patients and patients with developmental delays.<sup>29</sup>

## Barriers to IUD use

Barriers to IUD use include cost, few qualified providers, lack of simplified insertion protocols, cultural hesitation, and misconceptions of appropriateness of use.<sup>30</sup> While progress has been made in lowering the



Barriers to IUD use include cost, few qualified providers, lack of simplified insertion protocols, cultural hesitation, and misconceptions of appropriateness of use. rate of unintended pregnancy in the US, unnecessary barriers to contraception access and use persist. In a retrospective chart review of women desiring LARC over a 1-year period, delays occurred for 38% of patients due to factors including absence of

the use of emergency contraception by females ages 15-19.<sup>26,27</sup> IUDs have been found to be safe and effective emergency contraceptive options with low rates of expulsion and perforation, although their use for this purpose is off-label.<sup>16,26,28</sup>

As emergency contraception, the copper IUD must be inserted within 5 days of unprotected intercourse and is more than 99% effective. The WHO endorses the copper IUD as the most effective emergency contraceptive method.<sup>26</sup>

A 2021 randomized noninferiority trial found that the LNG-IUD, which many women prefer over the copper IUD due to its ability to reduce menstrual bleeding and dysmenorrhea, may also be an emergency contraceptive option if used within 5 days of unprotected intercourse.<sup>16</sup> In the study, 355 women seeking emergency contraception were assigned to LNG-IUD and 356 to copper IUD. Pregnancy rates were 1 in 317 for those with an LNG-IUD and 0 in 321 for the copper IUD users with a betweengroup difference of 0.3%, indicating that LNG-IUD was noninferior to copper IUD for emergency contraception. a qualified provider, waiting for sexually transmitted infection (STI) test results, and device unavailability.<sup>2</sup>

### Unnecessary screening visits

Barriers to securing effective contraception include unnecessary screening exams and tests prior to starting a method, inability to receive contraception on the day of the initial visit, and waiting for test results or the woman's next menstrual cycle to start contraception. Many providers still have the misconception that a two-visit protocol to complete a full health assessment and perform and receive results for an STI screen is required before IUD insertion. However, this is not endorsed by leading professional organizations and is a missed opportunity to provide effective contraception.<sup>22,31</sup> Same-day IUD insertion is not only cost-conscious, but also increases uptake rates, saves patients from additional office visits, and ultimately improves patient care.<sup>22</sup>

### Barriers to immediate postpartum placement

Immediate postpartum placement of IUDs (PPIUD) minimizes delays in providing effective contraception,

and is cost-effective, convenient, and safe for women. Despite evidence for its safety and effectiveness, multiple barriers including lack of provider training limit PPIUD.<sup>32</sup> In a survey of 100 family medicine faculty and 203 residents, only 26% had ever received education on PPIUD, 83% had never performed it, and 57% reported their hospitals did not offer it. Only 3% had performed six or more PPIUDs.<sup>32</sup>

It is also important for providers to recognize that immediately postpartum may be an inappropriate time to begin a conversation about IUD placement as this can be perceived as reproductive coercion.<sup>15</sup> When available, the option for immediate PPIUD should be discussed during routine prenatal care visits and, if the patient opts in favor of PPIUD, affirmative consent should be obtained again prior to IUD placement.

# Misconceptions regarding fertility and nulliparous use

Both clinicians and patients continue to hold misconceptions on risks involved with IUDs and the appropriateness of their use—among them, a concern about the impact of IUDs on fertility. There is no difference in

pregnancy rates among women who previously had an IUD and women who have never used contraception. A literature review of 22 studies involving 14,884 women—including 2,374 using an IUD—reported a pregnancy rate of 83.1% within 12

months of discontinuing contraception. There was no significant difference in pregnancy rates between IUD users and other-method users.<sup>33</sup>

A strong misconception that IUDs should not be used in nulliparous women persists. However, evidence indicates that IUDs are an appropriate contraceptive method for this population. Both the American Academy of Pediatrics and the American College of Obstetricians and Gynecologists recommend LARC as a first-line method for adolescents due to proven safety in young nulliparous patients and high efficacy, continuation of use, and satisfaction compared with short-acting contraceptive methods.<sup>29,30</sup> The CDC rates IUD use in adolescents as category 2: benefits generally outweigh risks.28 A retrospective chart review comparing adolescents who were never sexually active to those who were sexually active found no significant difference in IUD insertion success on first attempt (90.2% versus 96.1%, P = .086).<sup>34</sup> When needed, insertion in

nulliparous women may be assisted with cervical dilators or os finders.<sup>19</sup>

### Misconceptions about risk for PID

The risk of PID with IUD use is the same or lower than the general population, apart from a slight increase in risk during the first 20 days after insertion, felt to be due to contamination during insertion and not with the IUD itself.<sup>35</sup> The risk of PID is 0%-2% when cervical infection has been ruled out through screening, and 0%-5% with unknown cervical infection.<sup>29</sup> There is evidence that LNG-IUDs increase cervical mucus and decrease menstrual blood loss, thereby lowering the risk of PID by providing protection from bacteria entering the uterus through the cervix and retrograde menstruation through the fallopian tubes.<sup>35</sup>

# Misconceptions about risk of uterine perforation and expulsion

There is a risk of uterine perforation with IUD insertion, but this complication is extremely rare, occurring in 1 per 1,000 insertions.<sup>36</sup> Uterine perforations are often asymptomatic and rarely lead to serious compli-

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cations. Perforations can occur immediately at insertion or by gradual erosion through the endometrium. The rate of perforation is lower in recent times due to IUDs being flexible and no longer rigid. If perforation occurs, the IUD should be removed, the uterus allowed to heal for 1-2 months, and then another IUD can be placed. Myometrial embedment is also a rare complication.<sup>36</sup>

A systematic review and meta-analysis of IUD expulsion reported that rates of expulsion are dependent on timing of insertion.<sup>24,37</sup> The expulsion rate for IUDs is estimated to be 10% for devices placed within 10 minutes of delivery of placenta, 29.7% for early (greater than 10 minutes after placental delivery and less than 4 weeks postpartum) placements, and 1.9% if placed 4 weeks postdelivery or later. A recent 6-year retrospective study found no significant difference in the expulsion rate for IUDs inserted at 4-8 weeks versus 9-36 weeks

Timing of copper IUD placement <sup>28,45</sup>	
Routine contraception	The copper IUD can be inserted at any time regardless of timing of menses, as long as pregnancy can be reasonably ruled out.
Emergency contraception*	Can be inserted within 5 days of unprotected sexual intercourse without requiring additional contraception.
Postabortion (spontaneous or induced)	Can be inserted within the first 7 days, including immediately postabortion except for septic abortion. No additional contraceptive protection is needed.
Switching from another contraceptive method to copper IUD	Can be inserted immediately if reasonably certain that the patient is not pregnant. Waiting for the next menstrual period is unnecessary.
*IUD use for emergency contraception is off-label.	

postpartum.<sup>38</sup> LNG-IUD was associated with higher risk of expulsion than copper IUD, and intracesarean placement had a lower expulsion rate than vaginal placements. A replacement IUD may be inserted if the first is expelled.<sup>24,37</sup>

Parity increases the risk of expulsion. Gilliam et al. found that for every increase in parity of one delivery, the risk of expulsion increased by 30%.<sup>39</sup> However, the overall risk of expulsion for all women was low at 3.8% over 6 years, with most occurring within the first year. Notably, women with obesity were also found to have 2.2 times greater risk of expulsion.<sup>39</sup> Expulsion rate for adolescents ages 13-19 is about 6%.<sup>29</sup>

# Misconceptions about ectopic pregnancy and ovarian cancer

IUDs do not cause ectopic pregnancy. Due to the high efficacy of IUDs in preventing pregnancy, the risk of ectopic pregnancy is lower in women using an IUD than in women not using the device.<sup>29</sup>

Results of research examining IUD use and ovarian cancer risk are inconsistent. Researchers examined the association between duration, type and timing of IUD use, and ovarian cancer risk using three population-based studies.<sup>40</sup> The majority of the IUDs were non-hormonal and results were interpreted to be mainly for nonhormonal users. Overall, IUD use was not associated with epithelial ovarian cancer among IUD users, but older age at first use was associated with increased ovarian cancer risk (*P*-trend = .03).

### **Financial barriers**

The retail cost for an IUD can be as much as \$1,300.<sup>18</sup> Family planning clinics may offer free or reduced cost

for the device and insertion. Medicaid covers both the device and insertion under its global maternity fee in some states, but reimburses this separately in others.<sup>41</sup> Insurance plan utilization of IUD services increased between 2009 and 2014, likely due to a change from a high co-pay cost to no co-pay. Women in plans with the largest reduction in out-of-pocket costs after the implementation of the Affordable Care Act showed the greatest increase in IUD use.<sup>42</sup>

### Best practices

### Simplified insertion protocols

Most women can start a contraceptive method on the day of request with few tests or exams needed before initiation.<sup>43</sup> A point-of-care urine or serum pregnancy test should be evaluated at the onset of the visit, and it should be determined with reasonable certainty that the patient is not pregnant, regardless of the pregnancy test result, prior to IUD insertion. Providers should refer to the CDC contraceptive guidelines for more information on how to be reasonably certain that a patient is not pregnant.<sup>28</sup> When the clinician is not certain of pregnancy status, the woman should use a different method of contraception until pregnancy can be reasonably ruled out, and then the IUD can be placed (see Timing of copper IUD placement).28 Insertion can be performed at any time during the menstrual cycle if pregnancy has been ruled out.

Prior to IUD insertion, a speculum and bimanual exam should be done. If signs of infection (such as abnormal discharge or bleeding or cervical motion tenderness) are noted, the woman should be diagnosed and treated and the insertion postponed until

3 months after successful treatment.<sup>28</sup> Screening for gonorrhea and chlamydia should be completed at the time of insertion for patients with STI risk factors who have not been screened according to CDC guidelines. Insertion should proceed without waiting for results. If chlamydia or gonorrhea is detected after the IUD has been inserted, the woman can be treated and will be unlikely to develop PID.<sup>28</sup> Same-day IUD placement is associated with a 0.2% risk of pelvic infection, a similar rate as when IUD insertion is delayed to await results. Infections are rare in the first 2 years after placement and can be treated with antibiotics, often without a need to remove the device.<sup>1</sup>

### Addressing misconceptions and removing barriers

As practitioners, we can advocate for device and insertion coverage, funding family planning clinics, enabling provision of free IUDs, assurance that devices are kept in stock to prevent delays, free or subsidized transportation for patients, and provider education on appropriate IUD use and insertion as well as on historical coercive sterilization and reproductive exploitation.<sup>15</sup>

### Conclusion

Despite the high rate of unintended pregnancy, IUD use is low. IUDs may be safely used immediately postpartum, post abortion, post ectopic pregnancy, as emergency contraception, and as treatment for dysmenorrhea and heavy menstrual bleeding. NPs can improve IUD acceptance and use through detailed counseling on risks and benefits and taking active steps to remove barriers in their own practice.

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