

Table 1
Handouts and Web-Based Information on IUDs for Adolescents and Young Adults

Name of Document	Web Address	Source of Information	Date	Available as Pdf	Comments
IUD Information	https://www.reproductiveaccess.org/wp-content/uploads/2014/06/IUD_facts.pdf	Reproductive Health Access Project	2017	Yes	Notes characteristics that would suggest choice of hormonal vs copper IUD
Intra-Uterine Devices (IUDs)	https://youngwomenshealth.org/2012/08/02/iud/	Center for Young Women's Health	Not listed	No, but printable, e-mailable, and can post to social media	Lists FAQs and contraindications
Birth Control Methods/IUD	https://www.bedsider.org/methods/iud	Bedsider.org	2017	No, but can post to social media	Lists costs, side effects, FAQs, and has links to short video clips from real users (but only 1 teen, age 19; does have 1 "gender-queer" individual, "presenting masculinely")
IUD	https://www.plannedparenthood.org/learn/birth-control/iud	Planned Parenthood	Not listed	No	Lots of information and FAQs. Link to book an appointment at Planned Parenthood according to Zip code. Information on possibility of lower-cost options

FAQ, frequently asked questions; IUD, intrauterine device.

typically ask if the adolescent has heard about LARC methods. She will then provide additional information about these options, describing them as “very easy, very effective, and very safe options that many teens are very satisfied with.” In one study that compared users of the subdermal implant and users of an IUD, the main reason for choosing both methods was “recommendation by doctor.”⁸ Importantly, in contraceptive counseling for adolescents, clinicians need to honor principles of informed consent, treat each teen with respect and dignity, and be aware of power differences between counselors and the teens they counsel so as not to be yet another coercive influence.

IUDs can typically be introduced as an attractive option that many adolescents are very happy with, and that fit with a teen's goals of postponing pregnancy. The Contraceptive CHOICE Project promoted and evaluated the use of LARC methods, and participants were provided with free contraception.⁹ A standardized script about the effectiveness of LARC methods was initially provided, followed by evidence about the safety, effectiveness, risks, and benefits of all methods of contraception.⁹ In this study 62% of adolescents chose LARC methods. Interestingly, among adolescents who chose a LARC method, 63% of 14- to 17-year-old adolescents chose the implant, whereas 71% of the 18- to 20-year-old individuals chose an IUD.¹⁰

Typically, in discussing contraceptives with adolescents, it is helpful to ask what the teen has heard about LARC methods, including the IUD. It is good to know before discussing the issues if your patient has had a friend who loves her IUD or if she knows someone who has not been happy with it. Addressing myths up front is helpful. Adolescents are more likely than adults to have misconceptions about genital anatomy, and to ask basic and concrete questions about the IUD, such as its size, and whether the string protrudes beyond the introitus similar to a tampon string. Plastic models of the pelvis and uterus, and actual-size plastic IUDs can be useful props for demonstrating aspects of the IUD insertion. Written handouts and Web-based information on IUDs can be helpful for busy clinicians to provide to their patients. Some resources that the author has found useful include those listed in [Table 1](#).

As with all procedures, counseling should consider the elements of informed consent, which can be indicated with the acronym, BRAIDED. This acronym highlights information that should be provided to a woman to allow her to make an informed decision about her contraceptive choices, and is on the basis of principles from the US Department of Health and Human Services guidelines for informed consent for research and sterilization.^{11,12} BRAIDED stands for information about the **B**enefits, **R**isks, medical and surgical **A**lternatives; the fact that **I**nquiries about the physician's recommendations are the patient's right and responsibility; **D**ecisions to withdraw from the choice are the patient's right; an **E**xplanation of the indications for and the type of procedure planned is necessary; and **D**ocumentation in the medical record of these components of consent is required. This information does not need be addressed at length, but the acronym can serve as a reminder for a brief discussion of salient points. See [Table 2](#) with regard to BRAIDED counseling for IUDs.

Table 2
Counseling and Informed Consent for IUDs for Adolescents—BRAIDED

Benefits

- Effectiveness rivaling permanent sterilization¹³
 - Particularly effective in adolescents⁷
- Easy to use—initial action, then “forgettable” for 3–10 years with no need for daily, weekly, monthly, or every 3 months action
- High levels of user satisfaction^{8,14,15}
- High continuation rates^{14,15}
- Quick return of fertility¹⁶
- The most cost-effective method available over 5 years, with the annualized costs showing cost advantages over other methods that begin to accrue even after 1–2 years of use¹⁷
- Lighter bleeding (LNG-IUS)¹⁸
- Less cramping (LNG-IUS)¹⁸
- Amenorrhea in 20%–50% at 1 year (LNG-IUS)^{19,20}

Risks

- Risk of expulsion
 - Most studies show comparable risks of expulsion in nulliparous women^{21–23}
 - Increased risk of pelvic infection in first 20 days after insertion²⁴
- No protection against STI acquisition
 - Need for dual protection
- Low risk of perforation, not greater in adolescents²³
- Possible hormonal side effects can occur in the first 3 months and then get better
 - Breast tenderness, headache, nausea, acne, or oilier skin, mood changes^{25,26}
- Changes in bleeding pattern *will* occur
 - LNG-IUS
 - Irregular unscheduled bleeding (LNG-IUS) for 1–3 months
 - Lighter bleeding
 - Copper IUD
 - Heavier bleeding
 - More cramps
- Risks of adverse pregnancy outcome if pregnancy occurs
 - Risks of ectopic pregnancy if pregnancy occurs^{16,27}
 - Risks of spontaneous abortion/“miscarriage”/infection if intrauterine pregnancy occurs²⁷

Alternatives

- Other reversible methods of contraception

Inquiries about the contraceptive option are the patient’s right and responsibility

- Proactively answer all questions, on the basis of evidence

Decisions to withdraw from use are the patient’s right

- Can request removal if and when patient chooses for any reason: to get pregnant, or to choose another method of contraception, or for any reason at the individual’s request
- Encourage immediately switching to another effective method of contraception
- Option of self-removal can be offered and might increase interest in the method²⁸

Explanation of the method

- Clear explanation of similarities and differences between the different LNG-IUS and copper IUD²⁹
 - Duration of use, per FDA labeling—3 vs 5 vs 10 years
 - Evidence indicates longer duration of efficacy than FDA package information
 - Up to 7 years with Mirena^{30,31}
 - Up to 12 years with Paragard³¹
- Copper IUD is a very effective option for emergency contraception, when used within 5 days of unprotected intercourse, also providing ongoing contraception
 - The use of LNG-IUD for emergency contraception is considered investigational
 - Menstrual bleeding changes are expected
- Description of the anatomy and placement of the IUD in the uterus
- Description of the insertion procedure
- Information about the mechanism of action, if desired
 - Despite years of study, the exact mechanism of action of IUDs is unclear, and the high efficacy is likely due to more than 1 mechanism
 - The primary mechanism of contraceptive action is by preventing fertilization³²
 - Although IUDs do induce an inflammatory reaction of the endometrium, the bulk of the scientific evidence is that postfertilization mechanisms occur infrequently³²
 - Copper IUDs hinder ascent of sperm into the Fallopian tubes (where fertilization occurs) and might reduce the ability of sperm to fertilize an egg or have a toxic effect on sperm³³
- Description of options for pain relief should be provided

Timing of the insertion can be at any time in the menstrual cycle if it is reasonably certain that the woman is not pregnant³⁴

- Back-up contraception (or abstinence) should be used with the LNG-IUS if it has been more than 7 days since the last menstrual bleeding started³⁵
- Back-up contraception is not required after insertion of the copper IUD³⁵
- Cost might be a barrier, depending on insurance coverage

Documentation

- The IUD insertion procedure should be documented in the medical record
- The patient should be provided with information about IUD type, date of insertion, and due date for removal

BRAIDED¹¹ stands for information about the **B**enefits, **R**isks, medical and surgical **A**lternatives, the fact that **I**nquiries about the physician’s recommendations are the patient’s right and responsibility; **D**ecisions to withdraw from the choice are the patient’s right; an **E**xplanation of the indications for and the type of procedure planned is necessary; and **D**ocumentation in the medical record of these components of consent is required. Mirena is from Bayer HealthCare Pharmaceuticals Inc; Paragard is from Cooper Surgical, Inc.
FDA, US Food and Drug Administration; IUD, intrauterine device; LNG-IUD, levonorgestrel-releasing intrauterine device; LNG-IUS, levonorgestrel intrauterine system; STI, sexually transmitted infection. Adapted from Hillard.³⁶

Counseling About Side Effects

The most common side effect after IUD insertion entails changes in menstrual bleeding. The bleeding changes that occur with the levonorgestrel-releasing IUD trend toward lighter and less frequent bleeding. Bleeding changes with the copper IUD might include heavier bleeding and/or increased dysmenorrhea. However, the initial side effects of copper and levonorgestrel-releasing IUDs include irregular bleeding. Telling a teen that “you might have irregular bleeding” is often interpreted by adolescents to mean that although it’s possible in theory, “it can’t/won’t happen to me,” which is a developmentally normal response within the context of a “personal fable.” Adolescent egocentrism includes the concept of the personal fable—the belief that the individual is special, unique, and invulnerable to harm. This concept of the personal fable, as originally described, suggested that this belief was strongest in early adolescence, and declined in middle adolescence.³⁷ More recent studies have suggested that this egocentrism might re-emerge and influence behavior when an individual enters into a new environment, such as going off to college, with the idea that this might be an effective coping mechanism during transitions to new social contexts.³⁸ Thus egocentrism might be a factor in adolescent tolerance or intolerance of side effects such as breakthrough bleeding. Data indicate that unscheduled irregular bleeding or spotting occurs frequently in the first 4–6 months after levonorgestrel intrauterine system (LNG-IUS) insertion.³⁹ The sage advice provided to the author by a pediatric nurse practitioner colleague was to overstate the potential for side effects (eg, “You will have breakthrough bleeding in the first 1–3 months after the progestin IUD is inserted,” rather than “You might have breakthrough bleeding.” The clinician can then help an adolescent to think concretely about how she would respond to the presence of breakthrough bleeding (eg, “What will you do when the bleeding starts while you’re at school?” and “What will you say when you or your partner don’t want to have sex when you’re having bleeding?” This approach might help her to make a more informed decision about use of a method for which the short-term side effects of unscheduled bleeding might be

bothersome, but which has real and significant long-term benefits of easy, effective contraception and the likelihood of lighter bleeding with ongoing use.

Adolescents should be informed that amenorrhea is a possibility, but similarly to their assuming that bad things will not happen to them, they might assume that the positive effect of no bleeding will happen for them. The patient package insert cites the rate of amenorrhea of 20%, although some studies suggest rates of amenorrhea of approximately 50% at 1–2 years, similar to rates of amenorrhea experienced with depot medroxyprogesterone acetate injections.^{40,41} A recent systematic review and meta-analysis of rates of amenorrhea with the LNG-IUS concluded that approximately 20% of users have amenorrhea for at least one 90-day interval during the first year of use.¹⁹ Those who do not become amenorrheic typically have significantly lighter bleeding; thus the device had been used to treat heavy menstrual bleeding, and its labeling includes an indication for use in treatment of heavy menstrual bleeding “for women who choose to use intrauterine contraception as their method of contraception.”⁴⁰ Additionally, there is evidence for the use of the LNG-IUS for adolescents specifically to treat heavy menstrual bleeding and bleeding disorders, and these devices are commonly used in adolescents and adults for this reason on the basis of this evidence, even if contraception is not required.⁴² Adolescents can be provided with anticipatory guidance, telling them that the development of amenorrhea is a known potential benefit of the IUD system. If an individual is concerned about the possibility of a pregnancy as the cause of amenorrhea, a pregnancy test purchased in any pharmacy or online can provide a teen reassurance. Studies suggest that discontinuation rates are lower when women expect menstrual bleeding changes.⁴³ In counseling about expected menstrual changes, an adolescent can be asked how she would feel if she didn't get her periods, and her response can inform the decision-making about IUD type. A desire for regular menses would be one indicated for the IUDs that contain a lower dosing of levonorgestrel; Kyleena or Skyla (both from Bayer Healthcare Pharmaceuticals Inc) or a copper IUD.

Concerns about the potential for weight gain with the use of birth control pills, as well as the perception of weight gain have been linked with lack of adherence to oral contraceptives.⁴⁴ It might be helpful to address this concern prospectively with potential IUD users. Clinicians might counsel that there is little evidence for weight gain in IUD users, that some weight gain is expected over time during adolescence, and that pregnancy as an alternative is definitely associated with 15 to >30 pounds of weight gain.⁴⁵

Counseling About Insertion and Pain

In counseling about an IUD, one issue that needs to be explored is a discussion of the insertion process. If adolescents have heard anything about the IUD, they might have heard something about its insertion. Adolescents often ask concrete questions about insertion, such as “How long will it take to put it in?” Teens might be surprised to learn that their procedure typically takes 10 minutes or less in the

author's experience. One concern sometimes expressed by clinicians as a potential barrier to IUD insertion in adolescents is that the duration of the procedure might take longer in teens than it does in adults. Although this concern has not been extensively studied, one study in which adolescents and young adults were given either a paracervical block using lidocaine vs a sham injection before IUD insertion, insertion times did not differ between adolescents ages 14–17 years and young adults 18–22 years old.⁴⁶ The author of this review would acknowledge that if a nulliparous adolescent has not previously had a gynecologic exam, the pace with which the exam is performed might be slightly slower than in an older multiparous woman, although this is rarely of any clinical concern.

Because current guidelines recommend that the initial Pap test be performed at age 21 years for most young women, and because of the ability to screen for sexually transmitted infections using urine-based testing, fewer girls are having pelvic examinations during adolescence than in previous generations. The clinical report on the gynecologic examination from the American Academy of Pediatrics supports the performance of a complete gynecologic examination, when indicated, by the primary care clinician in a familiar setting of the primary care office.⁴⁷ However, this is still generally the exception rather than the norm in most communities.

Thus, most girls who are referred to the author for an IUD insertion have never had a gynecologic exam. It is also not rare to see a responsible young woman who has made a decision that an IUD would be a good method of contraception who not only has not had a gynecologic exam, but also has not yet experienced coitarche. Because there is growing evidence supporting the use of hormonal IUDs for noncontraceptive indications such as heavy menstrual bleeding, dysmenorrhea, or endometriosis, we are encouraging the use of the devices in virginal young women who are willing to consider the option.^{42,48–50} Safety and efficacy data support such use.⁵⁰

More family planning clinics are now offering same-day IUD placement, but not all clinics offer such placement, and this has been suggested as a barrier to the use of the copper IUD for emergency contraception.⁵¹ The author acknowledges and fully supports the practice of same-day insertion in adult women and adolescents who might make this choice. However, it is my opinion that in an ideal world, a young woman's first gynecologic examination would not also include an IUD insertion. Most young women report at least some anxiety before their first gynecologic examination. Many young women ask their mother or a girlfriend about the experience, but this does not assure that they will get accurate or unbiased information.⁵² The first gynecologic/pelvic examination has been described as a “rite of passage into...womanhood,” and can be a frightening experience or potentially a positive empowering one.^{53–55}

Ideally, the first gynecologic exam should be performed after appropriate education and anticipatory guidance has been provided. The technique of the exam should include telling the young woman what she will experience before it happens, coaching her in relaxing of the pelvic floor muscles, the selection of an appropriately sized

speculum—typically a Pederson speculum, and a slow gentle technique that avoids pain.⁵⁶ The use of topical 2% lidocaine gel at the vaginal introitus might also be helpful. It is the author's contention that a positive first gynecologic exam can facilitate and foster healthy attitudes about preventive care for an adolescent's reproductive future, with long-term benefits. In addition, an adolescent who has experienced a pelvic examination will be better able to give a truly informed consent for IUD insertion. One study of adolescents reported that overall satisfaction with IUD insertion was significantly lower in adolescents who had never had a gynecologic examination compared with those who had (odds ratio, 0.26; 95% confidence interval, 0.07–0.99).⁵⁷

If it is the adolescent's choice to undergo an IUD insertion as part of her first gynecologic exam, testing for sexually transmitted infections, including *Neisseria gonorrhoeae* and *Chlamydia trachomatis* using a nucleic acid amplification test should be performed concurrently with the IUD insertion; the presence of a mucopurulent cervicitis is a contraindication to same-day IUD insertion.⁵⁸ Vaginal secretions can be assessed for bacterial vaginosis and *Trichomonas vaginalis* with a wet mount or rapid *Trichomonas* testing, although evidence is conflicting about the value of screening for bacterial vaginosis in asymptomatic individuals before IUD insertion.

One small qualitative study showed that many young women appreciated self-disclosure about IUD use from clinicians and desired a better understanding of the IUD experience from their clinicians.⁵² Although clinicians vary in their willingness to disclose their own IUD use, providing information about the percentage of female clinicians who choose an IUD for their own contraceptive use might be helpful. The percentage of all female physicians who choose an IUD for contraception is higher than in the general public, and among female obstetrician-gynecologists or the partners of male obstetrician-gynecologists, IUD use has been found to be in the range of 30–50%.^{59–61}

IUD insertion has been variably described by nulliparous women as ranging from “period pain” for 62% to “severe abdominal pain” in 14%.¹⁴ Another report of IUD use in young nulliparous women (25 years or younger), 13.8% reported no pain at insertion, 65.9% reported mild to moderate pain, and 21.3% noted severe pain.^{62,63} It has also been reported that physicians significantly underestimate pain with insertion compared with patients' reports of pain.⁶³ Fear of pain has been cited as a barrier to IUD use, although one small study in which all contraceptive initiators were asked to rate anticipated insertional pain with IUD initiation showed no differences in anticipated pain among those who selected an IUD compared with other contraceptive initiators, suggesting that anticipated pain was not a major barrier to the selection of an IUD for contraception.⁶⁴ One survey of physicians in the United Kingdom showed wide variations in practices relating to pain relief.⁶⁵ Psychosocial factors including the expectation of pain might also influence perceptions of pain, and anxiolytics have been used for this reason.^{66–68} It is the author's strong belief that for nulliparous adolescents in particular, attention to pain relief and the preinsertion discussion of measures that will be used to

alleviate pain serve to reassure young women that their concerns about pain are being addressed.

A Cochrane review, updated in 2015, reviewed published interventions for pain during IUD insertion.⁶⁹ This review concluded that although the evidence for effectiveness of various interventions were of only moderate quality, coming from single trials, lidocaine 2% gel, misoprostol, and most nonsteroidal anti-inflammatory drugs (NSAIDs) did not help reduce pain. In one trial, which might no longer be relevant, naproxen taken before Dalkon shield IUD (A.H. Robins Company) insertion (a very different design from current IUDs and no longer available) was effective in reducing pain in a mostly nulliparous population compared with placebo in the first 2 hours after insertion.⁷⁰

In this Cochrane review, misoprostol for cervical ripening/“priming” was not shown to reduce the pain of insertion, and in most studies, misoprostol was associated with more cramping and pain.⁶⁹ In another systematic review, misoprostol was noted to reduce the number of difficult insertions (rated by the clinicians) and failed attempts of insertions in some studies.⁷¹ One study suggested a possible benefit for women with previous failed insertions.⁷² On the basis of these reviews, the author has changed her practice of routine administration of misoprostol, reserving it for individuals who have had a previous failed attempt at insertion.⁷³

Lidocaine gel formulations, either self- or clinician-administered intracervical or intravaginal, have not shown efficacy for pain relief in several randomized controlled trials, although most studies have not included adolescents.^{66,74–79} Topical lidocaine might be of some benefit before tenaculum placement.⁷³

Emerging evidence from randomized controlled trials is supporting the use of local paracervical anesthetic block as effective for IUD insertion pain.^{73,80,81} A study from the 1980s, describing the use of local paracervical anesthetic block, showed that 86% reported “no pain,” although the study was not randomized, and thus not included in the Cochrane review.⁸² Subsequent randomized controlled trials, including one in adolescents and young adults, showed evidence of effectiveness.^{80,83,84} Nulliparity has been associated with greater pain at IUD insertion, and a significant percentage of adolescents requesting an IUD will be nulliparous.^{63,85} A history of severe dysmenorrhea has also been associated with greater pain with insertion.⁶⁶

It is the author's experience and conviction, and in consideration of the previously cited trials, that adolescents benefit from efforts to relieve pain. At the time of initial discussion about IUDs, the author typically provides reassurances that multiple efforts to provide pain relief will be offered; we typically recommend premedication with naproxen, an NSAID, primarily on the basis of evidence showing improved pain relief after the insertion.⁸⁶ Because increased anticipated pain might predict insertion pain, efforts to alleviate anxiety and pain before the procedure are believed to be warranted. Anxiolytics are not provided routinely, but may be given on occasion for particularly anxious young women. Beyond the studies that indicate that nulliparous women and those with a history of dysmenorrhea experience more pain with insertion, the

Table 3
Post IUD Insertion Instructions for Adolescents

<p>Post-insertion Pain Most women have mild to moderated cramps for the first day or so Ibuprofen 400 mg (Advil or Motrin) or naproxen 220 mg (Aleve) are available without a prescription and are helpful. Take as directed and with food If pain is severe or you also have fever, CALL THE OFFICE at xxx-xxx-xxxx No tampons, no douching, no sex (don't put anything in your vagina) for the next 24 hours</p> <p>What to expect with bleeding Bleeding or spotting are common for the first few days or so With the hormone IUD (Mirena, Liletta, Kyleena, Skyla) In the first few months, most women have unpredictable bleeding for 1-3 months After the first few months, most women have regular bleeding that gets lighter and lighter 1 year after insertion, 20%-60% of women have stopped their periods With the copper IUD (Paragard) Most women continue to have regular monthly periods Bleeding might get somewhat heavier with the IUD than before Cramping might be somewhat worse Ibuprofen 400 mg (Advil or Motrin) or naproxen 220 mg (Aleve) are available without a prescription and are helpful. Take as directed and with food</p> <p>If you are using the IUD for birth control, it will be effective With the hormone IUDs It begins working in 7 days to prevent pregnancy For the first 7 days, either don't have sex, or use a condom Copper IUD It starts working immediately to prevent pregnancy</p> <p>To be sure that the IUD is still in place You can reach inside your vagina to feel the string</p> <p>An IUD does not protect against STDs USE A CONDOM every time you have sex Write down the dates of your periods and all bleeding</p> <p>Call the office if you: Have fever or chills and lower abdominal pain Have a vaginal discharge Are worried about an STD Can't feel the string, or feel that it seems longer Have pain or bleeding with sex Think you are pregnant Have unusually heavy bleeding</p> <p>Come back to the office In 6 weeks to let us check for the string</p> <p>Your IUD works to prevent pregnancy (according to official FDA label) Mirena—up to 5 years Liletta—up to 4 years Kyleena—up to 5 years Skyla—up to 3 years Paragard—up to 10 years</p>
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FDA, US food and drug administration; IUD, intrauterine device; STD, sexually transmitted disease.

Advil is from Pfizer Inc; Motrin is from Johnson & Johnson; Aleve is from Bayer Consumer Health; Mirena, Kyleena, and Skyla are from Bayer HealthCare Pharmaceuticals Inc; Liletta is from Allergan USA, Inc; and Paragard is from Cooper Surgical, Inc. Modified from Hillard.³⁶

author has found it difficult to predict which young women will find the experience very painful. Thus, it is the author's clinical practice to routinely provide a paracervical block for adolescents, nulliparous women, and adult women who are more than typically anxious about the insertion procedure.

Insertion Techniques

The author described the specific techniques of IUD insertion in "Practical tips for intrauterine device use in adolescents."³⁶ Those techniques have not changed in the interim. A slow and gentle technique during IUD insertion can be calming, and particularly necessary with anxious adolescents, who frequently describe the gynecologic examination as "awkward" at the least. The author finds it

helpful to maintain a gentle, even and soothing tone of voice, and an ongoing stream of conversation that includes warning the patient before any manipulation of the cervix or instruments, stating, with step-by-step narration of the exam, "next you'll feel me opening the speculum so I can see your cervix," "you'll feel pressure as I inject the local anesthetic," providing an aspect of "vocal local" anesthesia.⁸⁷ Techniques for performing a paracervical block vary somewhat. In particular, the author favors the technique of asking the patient to cough just before local anesthetic injection, holding the spinal needle still and assuring that the patient impales her cervix or paracervical tissue on the needle during the cough, which is typically not perceived as a "stick." This cough technique might also provide distraction during the performance of the block. On the basis of patient reports, the author has not observed that patients typically complain of pain from the paracervical block itself, and although this has been suggested in some reports. When asked in one study, most women believed that that the block was helpful.⁸⁴ The author typically injects a volume of 20 mL of 1% lidocaine without epinephrine shallowly into the paracervical tissues of the vaginal fornices, just lateral to the cervix at 4 and 8 o'clock, using a 22-gauge 3.5-inch spinal needle. This dose is below the maximum dose of 4.5 mg/kg for a 50 kg woman, and the volume of injections allows for diffusion into the paracervical nerves.⁸⁸

Other practical concerns to the IUD insertion procedure relate to the risk of a vasovagal reaction with syncope, nausea, or vomiting. In one series of insertions of an older IUD, the Lippes loop (Ortho Pharmaceutical Corporation), vasovagal reactions occurred in 2.8% of insertions.⁸⁹ The design of current IUDs and inserters might mitigate against this occurrence. Vasovagal reactions can be precipitated by fear, pain, and emotional stress, and have been reported to occur more often in young and nulliparous women in association with reports of moderate to severe pain.^{89,90} Although such reactions are quite infrequent in the author's recent experience, their management consists of monitoring the brief and transient hypotension and reflex bradycardia, as well as providing reassurances and warning that venipuncture, a hot environment, or prolonged standing might trigger such a reaction in the future.⁹¹ Patients might give the history that this has happened previously.

Post Insertion Patient Instructions

After the IUD insertion, a brief interval of rest on the exam table allows anxiety and cramping to dissipate, as well as provides an interval during which a reminder of what to expect post procedure can be given. Table 3 can be used as a teen-specific patient handout for post-IUD instructions. The teen can be reminded of the duration of contraceptive efficacy for the IUD type that she has chosen, provided with the patient card documenting date of insertion, and reminded to use condoms to minimize the risks of acquiring sexually transmitted infections. Backup contraception is required for 7 days if an LNG-IUS was inserted beyond day 7 of the menstrual cycle.³⁵ Prospectively

charting any bleeding episodes can be helpful in counseling, because an adolescent's perception of "bleeding all the time" does not necessarily signify daily bleeding. Patients are encouraged to chart bleeding episodes in any manner that they will consistently log: on a paper calendar that is provided by the clinic, on their favorite paper calendar at home, or using an app on their smartphone. Increasingly, the author's patients are using smartphone apps to chart menses.⁹²

Post insertional pain should be addressed prospectively as well. One study that assessed pain scores and medication use in the first 2 weeks after LNG-IUS insertion reported that pain scores were significantly higher among nulliparous adolescents than among parous adults (18 years of age or older), although there was a statistically significant difference in ibuprofen use only on the first day.⁹³

The value of a follow-up visit after IUD insertion has been questioned, but the author has found that a follow-up visit allows for assessment of IUD tolerance, an assessment of bleeding patterns, and reassurance that might encourage ongoing use. The author notes that although many adolescents do not examine themselves for the presence of the IUD string, a 6-week string-check can provide reassurance that the string is visible. One study, designed to evaluate whether regular follow-up after IUD insertion in adults protects against the risks and side effects of the device, concluded that a 6-week visit was effective in detecting expulsion, but that subsequent regular visits did not result in fewer pregnancies or expulsions; in the same study, removal for medical reasons was significantly earlier for women who did not have regularly scheduled visits, which was attributed to clinicians encouraging women who had regular follow-up to "stick it out," a benefit that the authors of this report discount.⁹⁴ Studies indicate that adolescents are not more likely to prematurely discontinue IUD use than are adults.⁹⁵ Providing reassurance that the bleeding in the initial few months of LNG-IUS use is common and a nuisance, but that improvements in cyclicity, bleeding frequency, amount, and menstrual pain are expected can be beneficial. In addition, the adolescent can be reminded that many individuals experience episodes of 90 days or more without bleeding during the first year of use.¹⁹

Most studies that have assessed rates of IUD expulsion in nulliparous vs parous women did not document higher rates of expulsion, although some have suggested more frequent visits (at 1, 3, and 6 months) for this group to detect expulsion or displacement.⁹⁶

Although concerns about increased risks of pelvic inflammatory disease (PID) in an adolescent population have deterred some clinicians from providing IUDs to teens, the risks of PID are documented to be highest in the first 3 weeks after insertion, and to return to baseline rates after that interval.^{24,97} The follow-up visit allows an exam to assess this risk, as well as an opportunity to reinforce consistent condom use, an important aspect of risk reduction. For adolescents who choose hormonal IUDs, the author might recommend a follow-up visit at approximately 3 months after insertion, allowing time for improvements in the episodes of unscheduled bleeding. The effects of follow-up visits are not well established for

women of any age, and they might not be necessary for many adolescents, particularly older teens and college students.⁹⁸ However, in the author's clinical practice, more frequent follow-up visits are reserved for anxious teens who might need ongoing encouragement with their chosen method, or who might require more frequent sexually transmitted disease (STD) testing. Patient-initiated clinic visits have been shown to be more frequent for adolescents than for adults, but typically are for similar concerns of bleeding changes or pelvic pain.⁹⁹

The author's primary treatment of irregular bleeding that can be associated with the LNG-IUS, is to use "tincture of time." Reassurance can be provided that bleeding changes typically improve with time and do not mean that the method is ineffective. Similarly, episodes of amenorrhea do not result in menstrual blood accumulating in an unhealthy manner. Bleeding changes and pain can drive IUD discontinuation.¹⁰⁰ Adolescents typically recognize fairly quickly the ongoing benefits of IUDs for contraception; satisfaction and continuation rates are typically high,⁵⁷ and better than with contraceptive alternatives such as pills, patches, and rings.¹⁵

NSAIDs can be useful for managing menstrual bleeding or pain with IUD use.¹⁰¹ A Cochrane review of the use of NSAIDs for bleeding or pain associated with IUD use concluded that NSAIDs should be considered first-line therapy for these side effects.¹⁰¹ The US Selected Practice Recommendations (US SPR) for Contraceptive Use recommend providing counseling about potential changes in bleeding patterns during IUD use for the copper and hormonal IUDs, noting that unscheduled spotting or bleeding is common during the first 3–6 months of IUD use.³⁴ The US SPR also state that when bleeding irregularities occur with IUD use, and if clinically indicated, underlying gynecologic problems such as IUD displacement, and STD, or pregnancy should be considered.³⁴ With adolescents, it would be appropriate to assess for STDs and pregnancy, to initially do an exam to see if the strings are still present, and potentially to consider a pelvic ultrasound examination to assess IUD location. Although clinicians have provided a number of other recommendations for managing bleeding irregularities with an IUD, such as the added use of combined hormonal contraceptives, depot medroxyprogesterone, or progestin-only pills, the short-term use of NSAIDs for 5–7 days is the only therapy supported by the US SPR.³⁴ The Cochrane review notes tranexamic acid might be considered as second-line therapy for bleeding associated with the copper IUD, and there is some emerging supportive evidence for this therapy.^{101,102}

I frequently tell teens that keeping a menstrual calendar/chart is their "homework," and that I'd like them to bring the calendar to the follow-up visit. Studies indicate that adolescents and nulliparous women are not more likely to discontinue IUD use because of dissatisfaction than are adults and parous women.^{99,103}

If an adolescent with a hormonal IUD has experienced amenorrhea and subsequently has a recurrence of irregular bleeding, testing for STDs or expulsion is warranted, because bleeding should not be assumed to be related to the hormonal device. If PID is diagnosed in an individual with

an IUD in place, the Centers for Disease Control and Prevention STD guidelines indicate that strong consideration be given to leaving the IUD in place, because “evidence is insufficient to recommend that the removal of IUDs in women with acute PID.”¹⁰⁴ A recurrence of regular bleeding after an interval of amenorrhea should prompt an exam to assure that the IUD has not been expelled, along with testing for pregnancy.

Summary

IUDs provide safe, easy, and extremely effective contraception for adolescents, particularly older teens, and should be considered as first-line contraceptive options for young women.^{1,105} Reproductive care of adolescents warrants attention to preventive guidance, appropriate counseling, gentle/empowering gynecologic exams, and ongoing encouragement. IUDs can be safe and effective choices for teens, enabling them to fulfil their reproductive life plans. Attention to practical aspects of contraceptive counseling and the provision of IUD care, including the use of NSAIDs as pre- and post-insertion care as well as paracervical blocks for insertional pain, can help to ensure successful contraception.

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