

## CE ARTICLE

# A clinical guideline for intrauterine device use in adolescents

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### Keywords

Adolescents; contraception; clinical practice guidelines; evidence-based practice; review; reproductive health.

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Received: June 2010;

accepted: May 2011

doi: 10.1111/j.1745-7599.2012.00753.x

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### Disclosure

The authors report no competing interests.

### Abstract

**Purpose:** To present an evidence-based review of the data for and against the use of the intrauterine device (IUD) in adolescent females and to provide guidelines for selection of appropriate candidates.

**Data sources:** Clinical research, expert opinions, and systematic reviews of IUD use in adolescents.

**Conclusions:** The use of the IUD in adolescents has been questioned in the past as a result of concerns surrounding increased risks for pelvic inflammatory disease and infertility in adolescents. Current research reveals no contraindications to IUD use based solely on age or parity and illuminates many benefits to use, including a decrease in menorrhagia and dysmenorrhea.

**Implications for practice:** The U.S. adolescent pregnancy rates rose from 2005 to 2007, reversing a decade-long downward trend. Adolescents need safe, effective, user-friendly contraceptive methods. IUDs are a safe and effective option for adolescents and provide an additional contraceptive option for nurse practitioners to offer their patients to prevent unintended pregnancy and enhance adolescent sexual health and well-being. Proper selection of candidates for IUD use can mitigate clinical and legal risks associated with IUD use.

The United States has a higher adolescent pregnancy rate than any other developed country (Teitler, 2002; UNICEF, 2001). Studies have shown a 5% increase in the adolescent birth rate over the years 2005–2007, for the first time in 14 years, following a 36% decline in the adolescent pregnancy rate in the 1990s and early 2000s (Guttmacher Institute, 2006; Martin et al., 2009; Moore, 2008). A recent study found that the decrease in adolescent pregnancy from years 1995 to 2002 is mostly attributable to increased contraceptive access and levels of use and only 23% attributable to a decrease in sexual activity (Santelli, Lindberg, Finer, & Singh, 2007). While it is still too early to determine the exact reason for the recent adolescent birth rate increase and the causes are likely multifactorial, research has shown a corresponding recent decline in adolescent contraceptive use (Moore, 2008). Thus, increasing access to reliable contraceptive methods is crucial to reducing adolescent pregnancy rates and forestalling the recent increase in unintended births to adolescent mothers.

Adolescents use contraception consistently at lower rates than other age groups at a time when they are likely more fertile than adult women (Mosher, Martinez, Chandra, Abma, & Wilson, 2004). Furthermore, a recent international study shows that adolescents (ages 15–19) have a 25% higher contraceptive failure rate than adults (ages 20–49) and higher discontinuation rates after 1 year of use (Blanc, Tsui, Croft, & Trevit, 2009). This supports past research that contraceptive failure rates for adolescents are higher than in other age groups (Besharov & Gardiner, 1997). Adolescents are in need of safe, highly effective contraceptive options that are more forgiving of user error.

One of these highly effective contraceptive options—the intrauterine device (IUD)—is rarely used by adolescents; only 0.1% of adolescents used an IUD as a contraceptive method in 2002 (Chandra, Martinez, Mosher, Abma, & Jones, 2005). While IUDs are the most widely used reversible contraceptive worldwide, their use is rare in the United States, in part as a result of the

legacy of the Dalkon Shield (Sivin, 1993). The Dalkon Shield was a deeply flawed IUD introduced in 1970 that was responsible for thousands of negative health outcomes, including pelvic infections, infertility, and death; the FDA pulled it from the market in 1974 and it has not been commercially available since that time (Sivin, 1993). The Dalkon Shield's design is unrelated to the models currently commercially available, and there is no evidence that the Dalkon Shield bears any relation to newer IUDs (Sivin, 1993). Studies have shown the current IUDs to be safe, highly effective, and easily reversible forms of contraception.

Historically, there has been a belief in a high incidence of pelvic inflammatory disease (PID) linked to IUDs; this misinformation stemmed from errors in early IUD research (Hatcher et al., 2007). Recent studies have shown the risk of PID after IUD insertion to be quite low and unrelated to the device itself (Farley, Rosenberg, Rowe, Chen, & Meirik, 1992; Walsh et al., 1998). Rather, the insertion process appears to slightly increase the risk of PID if done in the presence of pathogens such as gonorrhea or chlamydia, which can be screened for before insertion. The risk for PID has only been shown to be higher during the first 20 days following IUD insertion, after which time it drops to its preinsertion level (Farley et al., 1992). Furthermore, a large retrospective study of women with tubal infertility showed that a past history of copper IUD use was not associated with an increased risk for tubal infertility; rather, infection with chlamydia, regardless of past IUD use, was associated with infertility (Hubacher, Lara-Ricalde, Taylor, Guerra-Infante, & Guzman-Rodriguez, 2001).

Recently, some clinicians have called for a reexploration of IUDs as an option for adolescents (McNaught, 2006; Nicoletti, 2005; Toma & Jamieson, 2006; Yen, Saah, & Hillard, 2010). In 2005, the FDA approved an expanded patient profile to include adolescents ages 16 and up for IUD use (Waknine, 2005). A recent systematic review on the subject concludes, "Unless new evidence suggests otherwise, IUDs should be offered as a first-line contraception to all women—including adolescents who may have difficulty with methods requiring ongoing compliance" (Deans & Grimes, 2009, p. 422).

Clinical recommendations on adolescents and IUD use from influential health organizations endorse use of the method. According to the World Health Organization (WHO) *Medical Eligibility Criteria for Contraceptive Use* (2009), IUD use by a young woman between menarche and 20 years of age is classified as a Category 2, which means that for adolescents it is "a condition where the advantages of using the method generally outweigh the theoretical or proven risks" (WHO, 2009, p. 9). The American College of Gynecologists (ACOG) also supports

the use of IUDs in adolescents, stating, "Data support the safety of IUDs for most women, including adolescents" (ACOG, 2007a, p. 1493).

## IUD options

Two IUD options are commercially available in the United States: the Copper T380A IUD (Paragard<sup>®</sup>) and the levonorgestrel-releasing IUD (Mirena<sup>®</sup>). The Copper T380A IUD is a hormone-free T-shaped polyethylene frame with thin copper wire coiled around the arms and base (Duramed Pharmaceuticals, 2009). The FDA-approved duration of use for the Copper T380A is up to 10 years (Duramed Pharmaceuticals, 2009). The cost of the Copper T380A IUD is on average around \$500, plus the cost for insertion and follow-up visit (Trussell et al., 2009). Increased menstrual blood flow and dysmenorrhea are two common side effects of the Copper T380A, although they tend to be self-limiting and diminish over time (Mayo Clinic, 2008).

The levonorgestrel-releasing IUD has a T-shaped polyethylene frame that contains 52 mg of levonorgestrel, a progestin that is slowly released into the uterine cavity (Bayer HealthCare Pharmaceuticals, 2008). It has been approved for up to 5 years of contraception after insertion (Bayer HealthCare Pharmaceuticals, 2008). The levonorgestrel-releasing IUD costs around \$600, plus the cost of office visits for insertion, office follow-up, and eventual removal (Trussell et al., 2009). The main side effect of the levonorgestrel-releasing IUD is unpredictable vaginal bleeding (Mayo Clinic, 2008). The vaginal bleeding from the levonorgestrel-releasing IUD is generally light and irregular and is especially apparent during the first few months of use (Hatcher et al., 2007).

## Benefits

Both commercially available IUDs are in the highest category of contraceptive effectiveness, alongside sterilization, contraceptive implants, and injectable contraceptives (Steiner, Dalebout, Condon, Dominik, & Trussell, 2003). In fact, the levonorgestrel-releasing IUD is considered to have a lower number of pregnancies within the first year of use than female surgical sterilization (0.2% of levonorgestrel-releasing IUD users will experience an unintended pregnancy during the first year of use vs. 0.5% of sterilized women; Hatcher et al., 2007). Another factor in the IUDs contraceptive efficacy is that adolescents do not need to remember a daily pill or tri-monthly injection, thus making the IUD much less prone to user error. As Stanwood and Bradley (2006) noted, "Although taking one pill is easy, taking one consistently every day for 4 years provides 1,460 chances to miss a pill, 47 chances

to miss the monthly trip to the pharmacy, 47 chances to lack the co-pay to fill the prescription, and three chances to delay getting a renewed prescription from the clinician" (p. 1491). In addition, there is no evidence that the IUD interferes with the metabolism of other medications such as the antibiotic rifampin, unlike oral contraceptive pills (Hatcher, 2007). Because the IUD is not an oral agent, it does not confer the risk of loss of efficacy from vomiting during a period of gastrointestinal illness.

IUDs also have noncontraceptive benefits for patients: 29% of adolescent patients in a recent New Zealand study were using the levonorgestrel-releasing IUD for a noncontraceptive use (Paterson, Ashton, & Harrison-Woolrych, 2009). The most common indication for IUD placement in the study was menorrhagia (Paterson et al., 2009). An added benefit of both IUDs is that they appear to be safe to use while breastfeeding, unlike many contraceptive options. The Copper T380A IUD has been found to be a safe choice during this time (Duramed Pharmaceuticals, 2009). A 2005 randomized controlled trial found that the levonorgestrel-releasing IUD fared equally well in terms of breastfeeding performance, weaning rates, and infant growth (Shaamash, Sayed, Hussien, & Shaaban, 2005). In addition, IUDs offer a more discreet form of contraception than others. There is no need for adolescents to hide condoms, pill packs, or patches on the body, or to make frequent appointments (and travel arrangements) for refills or contraceptive injections.

## Risks

The risks associated with IUDs include expulsion of the device and perforation of the uterus (CDC, 2008). In the first year of use, between 2% and 10% of adult women IUD users will spontaneously expel their IUD, leaving them at risk for unintended pregnancy (Hatcher et al., 2007). A recent study of the levonorgestrel-releasing IUD use in New Zealand adolescents found an expulsion rate of 8% over 1 year (Paterson et al., 2009). In a recent systematic review, IUD expulsion rates for adolescents varied from 5% to 22% over a period of 6–48 months; however, half of the studies reviewed involved experimental IUDs, presumably with higher expulsion rates (Deans & Grimes, 2009). Risk factors for IUD expulsion include nulliparity (thus putting adolescents at a higher risk), extreme dysmenorrhea, and an abnormally heavy menstrual flow (Zhang, Feldblum, Chi, & Farr, 1992). Perforation of the uterus occurs in about 1 in 1000 IUD insertions and appears linked to the skill of the clinician inserting the device (WHO, 1987). No evidence accounts for the mechanism behind this higher rate of perforation with less-skilled clinicians; however, it might be related to misjudging the orientation of the uterus or being

unfamiliar with the correct pressure with which to guide the IUD through the internal cervical os.

## Contraindications

The absolute contraindications for IUD use according to ACOG include current pregnancy or PID, postpartum or postabortion sepsis within the past 3 months, current STIs, purulent cervicitis, undiagnosed abnormal vaginal bleeding, malignancy of the genital tract, or known distortion of the pelvic tract that would make insertion problematic (ACOG, 2007b). In addition, the WHO considers a high risk of sexually transmitted infections (STIs), active AIDS infection (although not HIV infection), and use of antiretroviral therapy to be Category 3 or conditions in which "...the theoretical or proven risks usually outweigh the advantages of using the method" (2009, p. 9). Wilson's disease, a rare genetic illness caused by lack of copper excretion, is also a contraindication for Copper T380A IUD use (Duramed Pharmaceuticals, 2009). Abnormal liver function tests or new onset of a movement disorder in an adolescent should always be investigated for Wilson's disease; in addition, patients require screening for Wilson's disease if they have a first-degree family member with the condition (Goulder-Khouja, 2009).

## Identifying appropriate adolescent patients for IUD use

If an adolescent patient has no known contraindications to IUD use and is interested in this method, clinicians need to weigh the risks of use with the risks of an unintended pregnancy. Although the risks of PID 20 days postinsertion return to baseline levels, if an adolescent patient is at very high risk for STIs, the IUD may not be the best contraceptive choice given the elevated risk during the first 20 days. In order to help identify patients at the highest STI risk, clinicians should ask questions about the number of sexual partners in the past 3 months, history of consistent condom use, history of past STIs, or partners with a history of STIs (Salem, 2006). While nulliparity is no longer a contraindication to IUD use, multiparous adolescents may have easier insertions and lower expulsion rates (Sääv, Aronsson, Marions, Stephansson, & Gemzell-Danielsson, 2007; Zhang et al., 1992). Clinicians ought to consider the noncontraceptive benefits of the IUD use in their risk–benefit analysis as well, such as potential improvement in menorrhagia and dysmenorrhea. In addition, clinicians need to evaluate an adolescent patient's ability to recognize signs of pelvic infection, return to the clinic for postinsertion follow-up and evaluation, and ability/willingness to check IUD strings.

## Choosing an IUD type

The choice of IUD depends to a large extent on the health history and preferences of the patient. Clinicians can help guide adolescent patients in IUD choice based on the patient's unique health history and patient education on the advantages and disadvantages of each type. One of the advantages to the Copper T380A is that it does not contain any hormones. While the WHO states that either IUD is acceptable in women who suffer from known cardiovascular disease, diabetes, anemias, gallbladder disease, and/or thrombogenic mutations (such as Factor V Leiden, prothrombin mutations, protein S, protein C, and antithrombin deficiencies), the Copper T380A has the highest recommendation, Category 1, for these patient populations (2004). The lack of hormones also appeals to many healthy women who prefer this feature in a contraceptive method. In addition, many women prefer to have a monthly period and may not tolerate the irregular bleeding that often accompanies insertion of the levonorgestrel-releasing IUD.

The levonorgestrel-releasing IUD has many advantages as well. Unlike the Copper T380A, it has been FDA approved for the treatment of menorrhagia (Bayer HealthCare Pharmaceuticals, 2008). Although the increase in menstrual flow and dysmenorrhea as a result of Copper T380A use appear to be limited to 2–3 months in duration, the levonorgestrel-releasing IUD is likely a better choice for adolescents with menorrhagia and dysmenorrhea at baseline (Hubacher, Chen, & Park, 2009). The levonorgestrel-releasing IUD has been used effectively to reduce menstrual blood loss and improve quality of life for adult women with bleeding disorders, such as von Willebrand disease (Lukes, Reardon, & Arepally, 2008). Levonorgestrel-releasing IUDs reduce menstrual bleeding up to 96% in postadolescents and many women become amenorrheic with the method (Stewart, Cummins, Gold, Jordan, & Phillips, 2002). Dysmenorrhea is a common finding in adolescent women; a recent study of adolescents ages 13–19 in India showed a prevalence of dysmenorrhea to be 67%; school absenteeism and missed social activities and work are common in this group, who may benefit from the levonorgestrel-releasing IUD (Sharma, Malhotra, Taneja, & Saha, 2008). Adolescents with endometriosis also might benefit from the levonorgestrel-releasing IUD; recent research suggests that endometriosis often starts during this life stage (Arruda, Petta, Abrao, & Benneti-Pinto, 2003). The levonorgestrel-releasing IUD has been shown to reduce pain caused by endometriosis in older women and this benefit may extend to adolescents as well (Petta, Ferriani, & Abrao, 2005).

## Clinical considerations

### Legal issues

Laws regarding the confidential provision of reproductive health services to adolescents vary state to state (Dailard & Richardson, 2005). Federal law, such as Title X of the Public Health Service Act, affords all patients confidential reproductive health services (although minors are to be encouraged to involve their parents in these decisions); Medicaid also protects the confidentiality of adolescent reproductive health care through its federal statute (Dailard & Richardson, 2005). Currently, 21 states and the District of Columbia explicitly protect the rights of adolescents to confidential contraceptive services, and 25 states afford rights to at least some groups of adolescents, such as those who are married or have given birth (Dailard & Richardson, 2005). Clinicians should become knowledgeable of the policies in their states of practice regarding adolescent reproductive healthcare provision and encourage adolescents to discuss their health decisions with their parents.

### Raising adolescent patient awareness of the IUD

A major barrier to IUD use in adolescents is that many adolescents are unaware of the IUD as a contraceptive option. Clinicians can better serve adolescent patients by making them more aware of the full range of contraceptive options during routine healthcare visits. In a recent study on adolescent knowledge and attitudes toward the method, 87 of 144 adolescents (60%) had never heard of an IUD; this percentage is similar to the rate in another study of pregnant adolescents (Stanwood & Bradley, 2006; Whitaker et al., 2008). Furthermore, adolescents who have heard of IUDs frequently do not have accurate information on their effectiveness and safety profile (Stanwood & Bradley, 2006). Following a 3-min educational intervention on IUDs, over half of the cohort of young women ages 14–24 had a favorable attitude toward IUDs. In this study, the authors found no particular adolescent demographic group that had a statistically significant higher positive attitude toward the IUD; thus, the authors conclude that all adolescents would benefit from education about the method so that they can make a more informed contraceptive decision (Whitaker et al., 2008). In addition, prenatal visits and pregnancy options counseling both offer opportunities to discuss IUD placement following birth or an abortion. Clinicians should incorporate education about IUDs in their contraceptive counseling of adolescent patients.

## Cost

Another potential barrier to adolescent access to IUDs is cost. Clinicians should guide patients on available resources to enable them to access an IUD if it is an appropriate contraceptive option for them. While an IUD has a high upfront cost compared to other birth control methods, the length of time that it is effective makes it cost saving in the long term. The Copper T380A and levonorgestrel-releasing IUDs are two of the top three most cost-effective forms of contraception available, taking into account not only the cost of the device and insertion, but also the cost of method failure and side effects compared to other contraceptive methods (Trussell et al., 2009). Many insurance plans cover the cost of IUDs. In addition, both the Copper T380A and the levonorgestrel-releasing IUDs offer payment plans through their websites for those paying out-of-pocket. The Copper T380A offers a 12-month payment plan and 150-day satisfaction guarantee, and the levonorgestrel-releasing IUD offers a payment plan in four installments (Bayer HealthCare Pharmaceuticals, n.d.; Duramed Pharmaceuticals, 2009). Clinician knowledge of these plans may help make IUDs more affordable to adolescent patients, who generally have minimal financial resources.

## Preinsertion visits

Ideally, adolescents would be well served by two visits prior to insertion of the IUD, although this may not be realistic for all patients. The two initial visits may be collapsed into one visit if not doing so would create a barrier to care. During the first visit, clinicians obtain a careful history of the patient, including menstrual, contraceptive, and sexual history, and exclude contraindications to IUD use. If a sexual history reveals recent unprotected intercourse at this visit, an adolescent patient can be prescribed Plan B. Following this prescription, patients need to use condoms consistently or be prescribed oral contraceptive pills until the next menstrual period to reduce the risk of IUD insertion during an active pregnancy. This first visit is primarily educational and does not require a physical exam; patients should be guided through the process of a pelvic exam and IUD insertion. Pictures/models of female anatomy and allowing the patient to see and touch a speculum and IUD may be helpful to illustrate the procedure and conceptualize the process (Moriarty Daley & Cromwell, 2002). Clinicians can offer anticipatory guidance related to the IUD insertion process, such as preparing patients for mild, menstrual-type cramping, and possible vasovagal reactions. In addition, clinicians need to review potential side effects with the patient. In par-

ticular, reminding patients who are using levonorgestrel-releasing IUDs that they may experience irregular menstrual bleeding during the first few months after insertion may help reduce patient anxiety if this common, usually self-limiting side effect of hormonal contraception occurs. It may be helpful for the clinician to keep a checklist of important information on IUDs to share with patients and to have patients repeat back key information to ensure understanding (Hatcher et al., 2007). Handouts can also be given to help reinforce teaching on the IUD and serve as a point of reference for patient questions.

The first preinsertion visit is an ideal time to ensure that other health needs are being addressed for the adolescent patient. The clinician should identify other adolescent reproductive health needs, such as the HPV vaccine and HIV/syphilis screening, at this time. In addition, clinicians have an opportunity to educate patients on condom use. Education focuses on the lack of protections against STIs and stresses the use of condoms for every instance of sexual intercourse. Clinicians can demonstrate proper condom use with models and help empower adolescent patients to use condoms consistently with sexual partners. Preinsertion clinical visits can help establish a relationship of trust between the clinician and adolescent patient prior to IUD insertion.

At the second preinsertion visit, patients are scheduled for a pelvic examination and screening for gonorrhea, chlamydia, and pregnancy. A bimanual exam is required to assess the position of the uterus and aid in IUD insertion. Although the causative organisms of bacterial vaginosis and trichomonas vaginalis have been associated with cases of PID, there is currently no evidence to suggest that presence of these pathogens increases the likelihood of PID in women with IUDs, so it is not thought to be necessary to perform a wet mount at the time of insertion in asymptomatic women (Meirik, 2007; Ness et al., 2004). Visualizing the cervix will also help assess for current infection at the preinsertion visit; an inflamed cervix with mucopurulent discharge could be indicative of infection and should be evaluated with a wet mount as well as with gonorrhea and chlamydia testing. As pelvic exams during adolescence set the tone for a patient's future reproductive care, it is paramount for the pelvic exam to be thoroughly explained beforehand and to empower the patient to feel comfortable stopping the exam at any point. Giving an adolescent a mirror during the pelvic exam may provide an opportunity for learning about her anatomy and also understanding what the IUD insertion will be like (Moriarty Daley & Cromwell, 2002). If the pelvic exam is not well tolerated by the adolescent patient, it is likely that an IUD would not be the optimal choice for this patient, and other contraceptive choices should be revisited. Adolescent patients are encouraged

to ask any questions that have arisen since the first preinsertion visit at this time.

Fear of pain related to IUD insertion may be a concern for adolescents at the preinsertion visits (Allen, Bartz, Grimes, Hubacher, & O'Brien, 2009). A recent systematic review was published investigating the use of cervical ripening agents (such as misoprostol), cervical numbing agents (such as lidocaine), or pain relievers such as ibuprofen or naproxen for pain relief associated with IUD insertion (Allen et al., 2009). Unfortunately, this review determined that there is not enough evidence to endorse a particular method to manage IUD insertion pain (Allen et al., 2009). Studies have not tested doses of ibuprofen higher than 600 mg; it is possible that higher dosages, often used for gynecological pain, may be an effective choice (Allen et al., 2009). One way that clinicians may be able to improve the IUD insertion experience lies in patient expectations: a high pain level associated with IUD insertion is linked to patient expectation of pain before the procedure (Murty, 2003). Thus, clinicians can play a role in managing patient expectations of pain during the insertion process, potentially improving the subjective experience of patients. Although misoprostol has not been shown to improve pain scores in patients, it has demonstrated an improved ease of IUD insertion for clinicians (Sääv et al., 2007). Sublingual administration of 400  $\mu\text{g}$  of misoprostol before IUD insertion has been shown to aid in clinician ease of IUD insertion in nulliparous women; the only significantly higher side effect in women taking misoprostol was shivering at time of insertion, which may be eliminated by intravaginal administration of the medication (Sääv et al., 2007).

### Timing of IUD insertion

Timing of IUD insertion is also an important consideration for adolescent patients, who may be less able to arrange for transportation at the onset of menses. A discussion of the timeline for IUD insertion should be held during the preinsertion visits. Many clinicians prefer to insert IUDs during a patient's menses to aid in the insertion process and ensure that there is no current pregnancy; the prescribing information for the levonorgestrel-releasing IUD also supports IUD insertion within 7 days of the first day of the menstrual period in order to help reduce risk of insertion during an established pregnancy (Bayer HealthCare Pharmaceuticals, 2008). However, no evidence exists of more complications occurring during insertion at other times during the menstrual cycle (Sääv et al., 2007). So long as a patient's medical history has been carefully reviewed, gonorrhea and chlamydia tests are negative, and there is a reasonable assurance of no current pregnancy (such

as a negative pregnancy tests at both a preinsertion visit and insertion visit), it is appropriate to insert an IUD (ACOG, 2007b). The Copper T380A IUD is immediately effective following insertion; the levonorgestrel-releasing IUD is also immediately effective if inserted within 7 days of the first day of menses (Hatcher et al., 2007). If the levonorgestrel-releasing IUD is inserted at any other time during the menstrual cycle, then the patient should be educated to use condoms during the first 7 days following IUD insertion when having sexual intercourse (Hatcher et al., 2007). IUDs may also be inserted immediately postpartum or after 4 weeks postpartum safely and effectively; it is possible that expulsion rates are slightly increased with this approach compared with placement at other times (Grimes, Schulz, Van Vliet, Stanwood, & Lopez, 2001). Research also suggests that IUD placement following first trimester abortion is safe (Grimes, Lopez, Schulz, & Stanwood, 2004). Patients have the advantage of one clinic visit and immediate contraceptive coverage. Perhaps as a result of the cervical dilation involved in this procedure, IUD expulsion rates may also be higher in these patients (Grimes et al., 2004). The Copper T380A IUD can be utilized as an option for emergency contraception up to 5 days after unprotected sex (ACOG, 2007b). Adolescents seeking emergency contraception will likely stay at risk for unintended pregnancy. Offering the copper T380A IUD to these adolescents would provide them with immediate emergency contraception as well as a more long-acting form of contraception to prevent future unintended pregnancy (Hatcher et al., 2007).

Just as flexibility in insertion timing may help adolescents with the IUD insertion process, flexibility in office hours, particularly afternoon and evening appointment times, may increase an adolescent's ability to have an IUD inserted or have any concerns addressed (Moriarty Daley, Sadler, Reynolds, & Leventhal, 2005). In addition, having on-call hours with a clinician is helpful to adolescents who often have urgent concerns and difficulty finding time and privacy during the day to call the clinic (Moriarty Daley et al., 2005). During the preinsertion visit, clinicians need to be clear when they are available for phone calls with questions related to the IUD or any part of the insertion or postinsertion process.

### Insertion visit

At the insertion visit, clinicians need to review the insertion procedure and elicit any questions or concerns from the patient. Patients should be reminded that discomfort, dizziness, cramping, and bleeding are common during and following the IUD insertion. Patients need to be educated on warning signs such as any new vaginal discharge, new onset of pelvic or abdominal

pain, dyspareunia, fever, or chills to help rule out STI or PID. These could be signs of rare IUD complications, and patients should be counseled to contact their clinician immediately if any of these symptoms present so that they may be evaluated for STIs or PID (ACOG, 2007b). Patients need to be instructed to check for the presence and length of IUD strings monthly to ensure correct placement; if strings change length, patients should be educated to use condoms for pregnancy protection and see their clinician. Longer strings could indicate that the IUD has been expelled from the uterus and is located in the cervix, rendering it ineffective. Absent strings could indicate that the patient has expelled the IUD without realizing, or that the IUD strings have ascended into the uterus, which is not harmful to the patient or limiting of the device's efficacy but requires an ultrasound to confirm the IUDs presence (Hatcher et al., 2007). In addition, clinicians need to stress the importance of condom use to reduce STI transmission.

Following IUD insertion, clinicians should have patients rest on the examining table for 10 min and monitor them for vasovagal reactions. Patients are then given a card with the name and photo of the IUD, insertion date, and date of recommended removal; an appointment needs to be made for follow-up care (Hatcher et al., 2007). Adolescents should be asked what the best and most private way is to reach them as a reminder for their follow-up appointment.

In the rare case that uterine perforation is suspected (based on severe abdominal pain or bleeding), the procedure must be stopped and the IUD (if inserted) removed (Salem, 2006). The patient must be kept on bed rest and have her vital signs monitored every 10 min by a nurse; the presence of a rapid pulse and/or falling blood pressure at any point requires hospitalization (Salem, 2006). In the absence of these signs, the patient needs to have her hematocrit and hemoglobin evaluated and should be monitored for 3 more hours; if she remains stable, she can be discharged home with instructions to avoid sexual intercourse for 2 weeks (Salem, 2006). The patient will require counseling on alternate forms of contraception (Salem, 2006).

### Follow-up care

Follow-up care is particularly important for adolescent patients (Moriarty Daley et al., 2005). Clinicians should see patients after their first menstrual period (or 1 month from insertion if there has not been a menstrual period). The clinician can inquire at this time about how/if the IUD is addressing the patient's needs, answer any questions the patient may have, and reinforce education on the IUD at this time. The clinician should also ask pa-

tients if they have any new vaginal discharge, new onset of pelvic or abdominal pain, dyspareunia, fever, or chills to help rule out STI or PID. If an STI or PID is present, appropriate antibiotics should be prescribed in a timely manner; there is no need to remove the IUD in this case unless desired by the patient (Hatcher et al., 2007). The clinician can also check the IUD string length with a pelvic examination at this visit and investigate further if there is a positive history for the symptoms listed above. Having a designated clinician for each adolescent patient may help with continuity of care and increase trust of adolescent patients (Moriarty Daley et al., 2005).

### Management of side effects and discontinuation

When an adolescent presents requesting IUD removal, it is paramount for the clinician to identify the reason for discontinuation. Adolescent patients need to be educated about the self-limiting nature of many common IUD side effects such as spotting with the levonorgestrel-releasing IUD or heavy menstrual bleeding with the Copper T380A. Heavy menstrual bleeding or irregular spotting/bleeding can also be moderated through the use of over-the-counter NSAIDs (Lethaby, Augood, Duckitt, & Farquhar, 2004). IUD continuation rates at 1 year appear to be high; in one recent study of adolescents, 75% continued with the method at 1 year, compared to 40%–50% of adolescent oral contraceptive users and 40%–42% of adolescent DMPA users (Hatcher et al., 2007; Toma & Jamieson, 2006). If the IUD is removed, adolescents need to be educated on the immediate return to fertility following removal of the Copper T380A IUD and the very short return to fertility with the levonorgestrel-releasing IUD, and counseled on other contraceptive options that may be a better fit for them (Hov, Skjeldestad, & Hilstad, 2007). Frequent follow-up with adolescent patients to dispel IUD myths and address any concerns may be helpful with method continuation and satisfaction.

### Summary

Current research suggests that IUDs are a safe and effective contraceptive option for many adolescents. IUD use in appropriate adolescent populations could help reduce adolescent pregnancy rates in the United States. Clinicians should include IUDs among other alternatives and weigh risks/benefits when evaluating the best contraceptive choice for an adolescent. Finally, clinicians need to consider the unique circumstances of adolescents and tailor education and follow-up to this patient population. Increased clinical knowledge combined with an individualized approach to the adolescent patient will enable

clinicians to help adolescents avoid unintended pregnancy and foster patient sexual health and well-being.

### Case studies

Kim is an 18-year-old G1P1 with a history of type 2 diabetes. She presents for her 6-week postpartum visit at your clinic requesting contraception. She is currently breastfeeding. In the past, she has tried oral contraceptive pills as well as DMPA injections, but she states that she was happy with either option. She would like to delay further childbearing for the next few years while she begins classes at the local community college. She and her partner have been in a monogamous relationship for the past 3 years.

*Questions:*

- Does Kim have any contraindications to using an IUD?

Kim does not have any contraindications to IUD use. According to the WHO, Copper T380A use in women with diabetes has no restrictions, and diabetes is “a condition where the advantages of using the method generally outweigh the theoretical or proven risks” of using a levonorgestrel-releasing IUD (WHO, 2004, p. 12).

- When can Kim receive an IUD?

Kim can have an IUD inserted once she has negative gonorrhea, chlamydia, and pregnancy test results (ACOG, 2007b). Kim is 6 weeks postpartum; patients must be within 48 h postpartum or at least 4 weeks postpartum to have an IUD inserted (Grimes et al., 2001).

*Discussion:*

An IUD would be an excellent choice for an older, parous adolescent like Kim, who desires a long-term contraceptive without having to remember pills or appointments. In addition, IUDs are not contraindicated during breastfeeding, unlike many other forms of contraception. The Copper T380A is a better option for adolescents with a history of diabetes.

Maria is a 16-year-old G0P0 presenting to your clinic for contraception. She has been sexually active for 1 year with her boyfriend, her first sexual partner. You last saw Maria and her boyfriend before they initiated sexual activity; they both requested STI testing at that time. Maria currently uses low-dose combined oral contraceptive pills and reports that she misses pills about once per week. She reports that she and her boyfriend had a “pregnancy scare” last month when her period was 3 days late. She would like to postpone childbearing until her twenties. Additionally, she mentions that she has heavy periods

with cramping that require five pads per day and keep her out of school for 1–2 days per month.

*Questions:*

- What is the most common side effect you should counsel Maria on use of the levonorgestrel-releasing IUD?

It is important to educate Maria that she may experience irregular spotting and bleeding with her new IUD, especially in the first few months after insertion. Maria can be reassured that this is a common side effect and does not indicate a problem with the IUD.

- What is especially important to include in Maria’s contraceptive counseling?

It is important to educate Maria that IUDs do not prevent STIs and that she needs to use condoms every time she has sex to decrease her risk of contracting an STI, although there is no evidence of an increased risk of PID if she does contract an STI once she is 20 days postinsertion (Farley et al., 1992).

*Discussion:*

This is a less clear-cut case for prescribing an IUD, because the patient is a younger, nulliparous adolescent; however, Maria has demonstrated maturity, responsibility, and an ability to follow-up with her clinician in getting tested for STIs prior to initiating sexual activity. Like Kim, Maria is interested in delaying childbearing for several years. The IUD is an option for Maria, along with the more traditional adolescent contraceptive option, DMPA. Maria is desirous of long-term, highly effective contraception, which makes the IUD a good alternative. Her history of menorrhagia and dysmenorrhea suggest that the levonorgestrel-releasing IUD may be a particularly good fit. Counseling Maria will require weighing the risks and benefits and individualizing a contraceptive choice for her.

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## Announcement

The American Academy of Nurse Practitioners (AANP) congratulates Dr. Joanne Pohl, PhD, ANP-BC, FAAN, FAANP, the first recipient of the annual Loretta Ford Award for the Advancement of the Nurse Practitioner Role in Health Care. Dr. Pohl accepted her award, presented by Dr. Ford herself, during the 27<sup>th</sup> National Conference of the AANP in Orlando Florida in June. Comments from nominators describe the impact of Dr. Pohl's work:

"Dr. Pohl has been a true champion for creating viable practice models which feature the Nurse Practitioner as a holistic care provider." – *Michael R. Bleich, PhD, RN, FAAN*

"Dr. Joanne Pohl exemplifies Dr. Ford's principles of turning challenge into opportunity resulting in effective action with contributions to both the role and scope of practice of Nurse Practitioners and to health care policy development." – *Christine Williams MSN, CNP, FAANP*

Dr. Pohl has published extensively on outcomes of patients served in nurse-managed health centers, including the following article published in *JAANP*: Pohl, J. M., Barkauskas, V. H., Benkert, R., Breer, L. and Bostrom, A. (2007), Impact of academic nurse-managed centers on communities served. *Journal of the American Academy of Nurse Practitioners*, **19**: 268–275. doi: 10.1111/j.1745-7599.2007.00224.x