Review article

Myths and Misconceptions About Long-Acting Reversible Contraception (LARC)

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A B S T R A C T

Purpose: To discuss common myths and misconceptions about long-acting reversible contraception (LARC) among patients and health care providers.
Methods: We address some of these common myths in an effort to provide clinicians with accurate information to discuss options with patients, parents, and referring providers. The list of myths was created through an informal survey of an online listserv of 200 family planning experts and from the experiences of the authors.
Results: When presented with information about LARC, adolescents are more likely to request LARC and are satisfied with LARC. Clinicians have an important role in counseling about and providing LARC to their adolescent patients as well as supporting them in managing associated side effects.
Conclusions: This review article can be used as a resource for contraceptive counseling visits and for the continuing education of health professionals providing adolescent reproductive health care.

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Unintended pregnancy is one of the most troubling public health problems in the United States, accounting for approximately 3 million pregnancies, or 50%, of all pregnancies annually. Among adolescents of the ages 15 to 19, 82% of pregnancies are unintended and 40% end in abortion [1–3]. Adolescent pregnancy has adverse effects on a young woman's socioeconomic status, education, and physical health that can last long after the pregnancy [4].

The 42% decrease in unintended adolescent pregnancy between 1990 and 2008 and a 59% decrease in the teenage abortion rate between 1998 and 2008 is worth celebrating [5]. Much of this decline can be attributed to increased contraception use, not decreased rates of sexual activity among adolescents [6].

Clinicians who seek to improve the health of young people applaud these statistics with some caution. Although long-acting reversible contraception (LARC) such as the two available intra-uterine devices (IUDs) and the etonogestrel implant are available, U.S. adolescents are more likely to use less effective methods, such as condoms and combination oral contraceptive pills (COCPs) [6]. Of women having an abortion, 54% report using a contraceptive method at the time they became pregnant—generally, a condom or an oral contraceptive [1,3].

The copper IUD (Paragard, Teva Pharmaceuticals, Sellersville, PA), levonorgestrel IUD (Mirena, Bayer HealthCare Pharmaceuticals, Wayne, NJ), and etonogestrel implant (Implanon and Nexplanon, Merck and Co, Inc, Whitehouse Station, NJ) have typical use failure rates similar to that of female sterilization, whereas COCPs and condoms have typical use failure rates 10–20 times higher [7]. Yet adolescents continue to report using less effective contraceptive methods. In analysis of the 2006–2008 National Survey of Family Growth, LARC use remained low among all U.S. women and only 3.6% of adolescents aged 15–19 years using contraception reported using an IUD, compared with 4.2%–6.6% of older women [8]. In a review of 2002 National Survey of Family Growth data, teens with history of pregnancy were significantly more likely to use depot medroxyprogesterone acetate (DMPA) than an IUD [9]. This may mean that clinicians are not counseling young women at risk for unintended pregnancy that they are candidates for the IUD.

Despite the small numbers of adolescents using IUDs in national studies, the literature demonstrates that adolescents who use IUDs have good outcomes. In a review of IUD use among adolescents that included six cohort studies and seven case-series reports, the continuation rate with an IUD after 1 year ranged from 48% to 88%—similar to or better than what is seen with COCPs [10]. Another recent study demonstrated that adolescents are not more likely than older women to request IUD removal because of dissatisfaction with the method [11]. Furthermore, surveys about patient opinions demonstrate that patient counseling about the IUD is critical.

- Young nulliparous and parous women report positive attitudes toward IUD use when they are counseled about the risks and benefits of the device before insertion.
- Adolescents desire effective long-term contraception.
- More than 50% of young women surveyed thought positively about IUDs after being educated about them [3,12].

When cost was removed as a barrier, adolescents were more likely to choose a LARC method: 61%–69% chose an IUD or implant in one study [13]. In this study, 63% of adolescents between 14 and 17 years of age chose an implant, compared with 29% of those between 18 and 20 years of age [13].

The etonogestrel implant (Implanon and Nexplanon) has been available in the United States since 2006. As with the IUD, early literature on the implant in adolescents shows good acceptability and continuation of use [13–16]. Cost, difficulty in returning to the clinic, and desiring long-term contraception have been cited as reasons for implant use by adolescents [13,16].

Postpartum adolescents using LARC are significantly less likely to have a repeat pregnancy within 2 years than those using other birth control methods [17]. Studies evaluating implant use in postpartum adolescents found that use was acceptable and led to higher continuing rates than other methods of contraception [15,18,19]. In one study, implant users had a mean time to repeat pregnancy of 23.8 months compared with 18.1 months for COCP/DMPA users and 17.6 months for barrier users or those who did not use postpartum contraception [18]. In addition, implant users were significantly more likely to continue this method compared with those selecting other methods ($p < .001$) [18]. In a 2012 study examining LARC choices by adolescents, 33% of 116 postpartum adolescents chose the implant and 32% chose IUDs. Those who chose an IUD had a greater delay to placement and more likelihood of having had intercourse before placement [19]. Another recent study of 44 postpartum women younger than age 20 years had a 0% discontinuation rate after 1 year of implant use [15].

The results of these studies echo those of studies comparing the levonorgestrel implant (Norplant) with COCPs and barrier methods [20,21]. Adolescents opting for Norplant over COCPs and barrier methods were less likely to become pregnant and more likely to continue their method over the long term [20,21].

Given these findings, the American College of Obstetricians and Gynecologists released a Committee Opinion in December 2007 that concluded:

"The IUD is a highly effective method of contraception that is underused in the United States. Because adolescents contribute disproportionately to the epidemic of unintended pregnancy in this country, top tier methods of contraception, including IUDs and implants, should be considered as first-line choices for both nulliparous and parous adolescents. After thorough counseling regarding contraceptive options, health care providers should strongly encourage young women who are appropriate candidates to use this method [22]."

A more recent practice bulletin and revised committee opinion from American College of Obstetricians and Gynecologists further emphasizes that IUDs and implants should be offered to nulliparous and parous adolescents [23,24].

Despite these clear guidelines based on good evidence, adolescents, parents, and clinicians continue to express concerns about LARC. Some concerns are based on poor evidence or misconceptions, some may be based on truth and simply require additional counseling or information. Myths affect uptake of these methods among a population that may need this information and access to LARC the most. We address some of these common myths in an effort to provide clinicians with accurate information to discuss options with patients, parents, and referring providers. The following list of myths was created through an informal survey of an online listserv of 200 family planning experts and from the experiences of the authors.

Patient Myths and Misconceptions

Myth: IUDs cause abortion

IUDs do not terminate a pregnancy. They prevent fertilization. The copper contained in the Paragard IUD is toxic to sperm and ova because of the production of cytotoxic peptides and other inflammatory markers. The levonorgestrel in Mirena increases cervical mucus and suppresses the endometrium [7]. Studies looking for "chemical pregnancies" with urine and serum beta human chorionic gonadotropin analysis in women using hormonal and nonhormonal IUDs have found none [25–27]. In addition, tubal flushing in women with IUDs recovered no fertilized ova in one study [28].

Myth: IUDs cause pelvic inflammatory disease

Some of the concern about pelvic inflammatory disease (PID) with the IUD is a result of the poor outcomes associated with the Dalkon Shield, which had a multifilament string that allowed bacteria to ascend from the vagina into the uterus, with damaging consequences [29]. Current IUDs have a monofilament string that does not increase the user's risk of pelvic infection. Young women may express concern about PID or infertility as a result of the experience of older female friends or relatives with the Dalkon Shield.

In a review of the World Health Organization's IUD clinical trial, Farley et al [30] found that the rate of PID in nearly 23,000 IUD insertions was the same as the baseline risk in the population without an IUD: 1.6 cases per 1,000 woman-years of use. However, the risk of PID was 6 times higher in the first 20 days after insertion. Despite this potential elevated risk of PID in the first 20 days after insertion, a recent study found that women could be screened for gonorrhea and chlamydia infection at the time an IUD was being placed and treated after insertion if either of the tests were positive. No women in this study developed PID [31]. In a review of the literature to analyze the impact of a current sexually transmitted infection at the time of IUD insertion, the absolute risk of PID remained 0%–5% among women who had gonorrhea or chlamydia at the time of insertion [32].

Mirena may actually have a protective effect against PID. When the device was compared with a copper IUD (Nova-T) in a randomized, comparative, multicenter trial, women with Mirena had a cumulative gross rate of PID that was one fourth that of the women with the Nova-T [33]. Theoretically, this may be a result of the thickening of cervical mucus, thinning of the endometrium, or decreased bleeding caused by the levonorgestrel IUD [33].

Condom use is increasing at first and most recent sexual intercourse among all age groups of adolescents as reported in the National Survey of Family Growth [34]. Although certainly not as effective for contraception as LARC, condoms remain critically important for sexually transmitted infection prevention. All adolescents receiving LARC should also be counseled on the importance of consistent condom use.

Myth: IUDs cause infertility

The evidence against infertility associated with IUD use comes from two cohort studies [35,36]. In a 2001 cohort study of women seeking treatment for primary infertility without tubal occlusion, women seeking treatment for primary infertility with tubal occlusion, and primigravida pregnant women, the same percentage in all groups reported prior copper IUD use, thus providing evidence that the IUD was not causative [35]. In a prospective cohort IUD study in Norway, women who had their copper IUDs removed to become pregnant versus those who had them removed for complications had no difference in pregnancy rates [36].

Myth: LARC causes ectopic pregnancy

Paragard, Mirena, and Implanon lower the risk of ectopic pregnancy just as they decrease the risk of pregnancy overall. In the unlikely event that a woman becomes pregnant using a LARC method, she may have an increased likelihood of having an ectopic pregnancy [7]. This is an important distinction to convey to adolescents during counseling. Levonorgestrel and copper IUDs have been shown to decrease the risk of ectopic pregnancy to one tenth that of women not using contraception [37]. Of the pregnancies that occurred in trials of Implanon, 4.7% were ectopic, but only half of these were determined to be pregnancies resulting from method failure, a rate similar to that of ectopic pregnancy in the U.S. population in general [38].

Misconception: LARC causes menstrual irregularities

Menstrual disturbances are indeed one of the most common side effects of LARC methods and should be included in patient counseling [7,39]. Outlined below are bleeding profiles associated with each method.

Paragard. In a randomized controlled trial of ibuprofen to prevent Paragard removals for pain or heavy bleeding, Hubacher et al [40] demonstrated an 11%–13% removal rate for these side effects. Ibuprofen use did not mitigate the removal rate or side effects. In a secondary analysis of these data, the authors found that side effects such as heavy bleeding and pain fluctuated over time, sometimes increasing and sometimes decreasing [41]. Studies of other types of copper IUDs have found that the blood loss associated with heavy menstrual bleeding is not usually clinically significant [42].

Mirena. The most common change in menstrual pattern with Mirena is a decrease in bleeding [43,44]. Getting to endometrial suppression with levonorgestrel may take several months, during which time some users have irregular bleeding and spotting. Studies vary in the percentage of women who experience amenorrhea, showing 20%–50% at 6 months to 2 years of use [43–45]. A systematic review of the literature on Mirena's menstrual effects found that all included studies demonstrated a significant reduction of menstrual blood loss or "menstrual disturbance score" and most showed an improvement in iron levels [46].

Implanon. An integrated analysis in 1998 of 13 clinical trials of Implanon showed that, after the first 90 days of use, the most common menstrual disturbance with Implanon is amenorrhea or infrequent bleeding, with 14%–25% of users reporting amenorrhea during 2 years of use [39,47]. Frequent or prolonged bleeding was reported in 2.5%–13.5% of users after the first 90 days of use [47]. In the clinical trials, 13% of women discontinued Implanon because of bleeding concerns [39]. In addition, a recent study of U.S. women using Implanon found that 15% of those who had their devices removed did so for bleeding disturbances, although these bleeding disturbances may have included lighter or less frequent bleeding [48].

In a small pilot study of 23 adolescent Paragard and Mirena users, Godfrey et al [49] reported that 30%–50% of adolescents complained of heavy bleeding at some point during the study. The authors did not discuss whether this was a consistent complaint throughout the 6-month period of the study. Another small study of adolescent Paragard and Mirena users did not show incidences of pain or bleeding that were significantly different than those of adult women [50].

Because the most frequent menstrual side effect associated with Implanon and Mirena are decreased bleeding, these methods may be better suited to adolescents with a history of menorrhagia than is Paragard [46]. When counseling an adolescent about LARC, the discussion should review her expectations about her menstrual periods. If her menses have been troublesome in the past, she may be willing to endure a few months of irregular bleeding to reach a point of lighter, more manageable cycles, as typically occurs with Mirena. On the other hand, if she feels reassured by a period or if either adult caregivers or male partners are monitoring her menstrual cycle (which can certainly occur in abusive or controlling relationships), the copper IUD may be a better option, where regular menstrual cycles are expected.

Misconception: IUDs are painful

Women may express concerns about pain with insertion or pain with continued use of an IUD. Few studies have evaluated this aspect of IUDs with a solely adolescent population, although some studies have examined pain with IUDs and pain differences between nulliparous and parous women [10,51]. In a study of ibuprofen for IUD insertion, nulliparous women reported more pain with insertion than multiparous women, but both groups had low pain scores [52]. No interventions have been shown to improve pain with insertion, including paracervical block, nonsteroidal anti-inflammatory medications, and misoprostol [51], although these approaches for reducing pain have not been well-evaluated specifically with adolescents.

Pain with continued use of IUDs appears to decrease over time. One study examining side effects with Paragard found a 9% incidence of serious pain in the first 9 weeks of use that consistently decreased over time [41]. Many studies have evaluated pain as an indication for IUD removal [50,53], but few have evaluated pain with continued use. In a pilot study of 23 adolescent IUD users, 20%–25% of users reported pain in a given month [49]. Another study comparing 18- to 25-year-old IUD users with COCP users of the same ages found a higher incidence of pain reported by IUD users but a lower incidence of dysmenorrhea [54].

In contrast to the concern about LARC causing pain, two LARC methods are frequently used for treatment of pelvic pain. In small studies, Mirena and Implanon have demonstrated efficacy in the treatment of pain and bleeding related to endometriosis [55,56] although neither has a specific Food and Drug Administration–approved indication for this use.

Myth: LARC causes weight gain

Weight gain is considered a hormonal side effect of some birth control methods. Hormonal side effects are thought to be due to the presence of circulating hormones [57]. Studies that have examined Mirena pharmacokinetics have found that serum levonorgestrel levels remain below the threshold for prevention of ovulation, without peaks in plasma progestin concentration, and significantly lower than circulating levels associated with COCPs or implants [57,58]. However, when compared to a copper IUD (not Paragard), a significant difference in weight gain was associated with Mirena [57]. In a recent study, weight gain in women with a median age of 34 years using Mirena compared with Paragard was not significantly different at 12 months of use [59]. However, in another study examining weight gain with Mirena when used for treatment of adenomyosis, Sheng found that 29% of 94 women aged 24–45 years complained of weight gain of greater than 2 kg over the 3-year study period [60].

In a review of 11 international clinical trials of Implanon, Darney et al [61] found that 12% of women aged 18 to 40 years reported weight gain as an adverse event associated with the implant. Of those women who discontinued the method during participation in the study, 2.3% discontinued for weight gain [61]. In a review of 13 clinical trials of Implanon, Urbancsek [62] found that there was a clinically significant weight gain of greater than 10% of baseline weight in 20.7% of all Implanon users aged 18 to 40 years.

If a young woman voices concerns about weight gain with these methods, a counseling point should be that hormonal methods may indeed be associated with weight gain for some women. It is impossible to predict which women will experience these side effects. In addition, as in any discussion of risks of hormonal contraceptives in a sexually active woman, the comparison should be to the pregnant state, not the nonpregnant state. Pregnancy results in significantly greater weight gain for the majority of women than do hormonal contraceptives.

Misconception: LARC worsens acne

Acne is another side effect linked with circulating levels of hormone. Indeed, as stated previously, the incidence of termination of Mirena versus a copper IUD for these side effects, including acne, was significantly higher in a large trial [57]. A study of 193 women aged 18 to 25 years randomized to COCPs versus Mirena IUD found that the women in the Mirena group were significantly more likely to report acne at 12 months [54]. However, COCPs are associated with an improvement in acne in previous literature, whereas Mirena is not [63].

In a review of data from 13 clinical trials on Implanon, Urbancsek [62] found that 14% of women aged 18 to 40 years with no acne at baseline developed acne with Implanon use and 10% of women with preexisting acne had a worsening of the condition. On the other hand, 59% of women with preexisting acne had improvement in their condition [62]. The impact of Implanon on acne is therefore not consistent or predictable and may vary in individual patients.

Myth: LARC causes hair loss

Data on hair loss with LARC are limited. In a recent analysis of drug monitoring reports, Paterson [64] found a 0.33% cumulative incidence of alopecia among Mirena users. Reviews of clinical trials of Implanon do not report hair loss as a significantly reported adverse event [61,62].

Myth: LARC causes osteoporosis

Concerns about osteopenia and osteoporosis may relate to the Food and Drug Administration's black box warning on DMPA; the warning states that prolonged DMPA use may lead to a loss of calcium stores in bone and subsequent bone loss. Theoretically, any method that causes a low-estrogen state may impact bone mineral density (BMD). However, studies examining this relationship have proven the black box warning to be unfounded because adolescent users regain BMD after discontinuing the method, similar to the pregnant state [65,66].

One study examined change in BMD over 2 years in 44 women aged 18 to 40 years using Implanon and 29 women aged 21 to 40 years using a nonhormonal IUD. No statistically significant or clinically significant decrease in BMD occurred in either group [67]. Bahamondes et al [68,69] have analyzed Mirena and BMD, finding that women aged 25–51 years using Mirena for 10 years had no difference in BMD than women using Paragard for the same period of time.

Myth: IUDs won't fit in my uterus

Clinicians and patients express concerns about the size of IUDs for nulliparous women, but no literature demonstrates a difference in risk of complications according to the size of the IUD. In the United States, the only currently available IUDs are Mirena and Paragard. Although smaller or frameless IUDs have been evaluated to see if they reduce pain or bleeding, no current evidence supports that changing the size of the IUD has any impact on these side effects [70,71]. Studies of previous copper IUDs demonstrated that changes in size may impact removals for pain and bleeding, but this does not appear to be the case for the current smaller Paragard [72]. In addition, although previous copper IUDs have been associated with high rates of expulsion in nulliparous women [72], the available data on both Mirena and Paragard demonstrate similar rates of expulsion for nulliparous and parous women of approximately 5% [72,73].

Misconception: The IUD will get stuck in my uterus

Both patients and clinicians have expressed concerns about IUD perforation. The overall risk of perforation with IUD

insertion is 0%–1.3%, [44] and there are insufficient data to demonstrate a difference in perforation risk between nulliparous and multiparous women [74]. Although case series of difficult IUD removals and laparoscopic removal for intraabdominal placement exist, no current literature reviews the incidence of these specific complications [75,76].

Myth: IUDs can only be put in during my period

There is no evidence to suggest that IUDs must be inserted during menstruation [7,77]. Although some clinicians suggest this technique to reduce the risk of insertion during an early pregnancy, offering IUD insertion at any point in the menstrual cycle if it reasonably certain that the woman is not pregnant greatly reduces barriers to insertion. Adolescents should be cautioned to use another contraceptive method or abstinence for 2 weeks before IUD insertion.

Paragard alone or Mirena plus oral emergency contraceptives (either levonorgestrel or ulipristal acetate) can also be used for emergency contraception if unprotected intercourse occurred within the 5 days before insertion.

Misconception: Package insert says I can't use it

Although the Mirena package insert states that Mirena "is recommended for women who have at least one child" [44], there is no existing evidence that precludes nulliparous women from using Mirena [22,74]. Package inserts for Paragard and Implanon contain no such statements [78,79].

The World Health Organization and Centers for Disease Control and Prevention Medical Eligibility Criteria for Contraceptive Use state that the use of IUDs in nulliparous patients has advantages that "generally outweigh theoretical or proven risks" [80,81] (category 2). In the explanation of this recommendation, the authors refer to a concern that "data conflict about whether IUD use is associated with infertility among nulliparous women, although well-conducted studies suggest no increased risk" [80].

Myth: Implants and IUDs cause cancer

Neither implants nor IUDs have shown a causal relationship with gynecologic or other cancers. Indeed, copper- and hormone-containing IUDs have demonstrated a potential protective effect against endometrial cancer [82]. In addition, a recent study has demonstrated that copper IUDs may have a protective effect against cervical cancer [83].

Clinician myths and misconceptions

In a 2008 poll of 816 health care providers (including 399 physicians and 402 advanced practice clinicians), 40% did not offer intrauterine contraception to *any* patients who sought contraception [84]. Most clinicians (55%) considered less than one quarter of their patients to be candidates for intrauterine contraception. Furthermore, less than half of clinicians considered nulliparous, immediate postpartum or after abortion, or teenage patients to be a candidate for intrauterine contraception [84]. They also thought that women who had a history of ectopic pregnancy or PID, or who were HIV-positive, were not candidates for intrauterine contraception—despite recommendations by the Centers for Disease Control and Prevention and the World Health

Organization that the advantages of using the method generally outweigh the theoretical or proven risks of intrauterine contraception in HIV-infected populations and no restriction for use in those with a history of ectopic pregnancy [80,81].

In a survey of obstetrician-gynecologists in 2002, Stanwood et al [85] found that 84% thought that a woman in a nonmonogamous relationship was not a candidate for an IUD and 81% thought that a woman with a history of PID was not a candidate. Two thirds of respondents thought that nulliparous women should not have an IUD [85]. An April 2012 survey of family medicine physicians, obstetrician-gynecologists, and advanced practice clinicians found that 16% continue to consider the IUD unsafe for nulliparous women and 80% rarely or never provide IUDs to this population [86]. Another recent survey found that 85% of clinicians in a publicly funded family planning program that provides contraception at no cost would not place a copper IUD for emergency contraception [87].

When we consider the previously described finding of excellent satisfaction and continuation rates for LARC methods, we should ask why clinicians continue to be hesitant to provide these methods to young women. In addition to the concerns addressed here, clinicians may have other questions about LARC safety in this population. Is LARC safe in patients with medical conditions? The Centers for Disease and Control Medical Eligibility Criteria addresses many questions about medical conditions and LARC use [88]. The only conditions in which the risks of LARC outweigh the benefits include those listed in Table 1.

Misconception: Parental consent is required

According to the most recent review of state laws by the Guttmacher Institute, 21 states specifically allow minors to consent to contraceptive services including IUD insertions, 4 states have no explicit policy on this issue, and 25 states permit minors to consent under certain circumstances such as being married, being a parent, being previously pregnant, or facing a health risk with unintended pregnancy [89]. More detailed information can be accessed at www.guttmacher.org/statecenter/spibs/spib_MACS.pdf.

Misconception: Teens must/won't be able to check strings every month

Checking IUD strings monthly is not a prerequisite for IUD placement and should be offered to women as an option. Instead of a focus on strings, women should be counseled on the signs and symptoms of expulsion, such as pain and heavy bleeding or recurrence of monthly menses after establishment of amenorrhea.

Myth: Teens prefer to use condoms and oral contraceptives

As noted previously, when educated about IUDs and implants, adolescents report significantly greater interest in and greater uptake of LARC. Many adolescents do not know that LARC are contraceptive options available to them.

LARC counseling is particularly relevant for female adolescents in unhealthy and abusive relationships. An estimated one in three female adolescents are affected by intimate partner violence [90,91]. Male partners may be manipulating condoms in order to get their partners pregnant, preventing her from using birth control, or even tampering with her method of birth control

Table 1
Methods contraindicated for use in medical conditions

Condition	Nexplanon/ Implanon	Mirena	Paragard
Distorted uterine cavity		X	X
Cervical cancer awaiting treatment or endometrial cancer (initiation of use)		X	X
Gestational trophoblastic disease		X	X
Headaches with aura that develop during use	X	X	
AIDS, unless clinically well on antiretroviral therapy (initiation of use)		X	X
Ischemic heart disease that develops during use	X	X	
Stroke during use	X		
Current pelvic inflammatory disease or purulent cervicitis (initiation of use)		X	X
Postabortal or postpartum sepsis (initiation of use)		X	X
Unexplained or unevaluated vaginal bleeding (initiation of use)	X	X	X
Complicated solid organ transplantation (initiation of use)		X	X
Systemic lupus erythematosus with a history of positive antiphospholipid antibodies	X	X	
Systemic lupus erythematosus with severe thrombocytopenia (initiation of use)			X
Pelvic tuberculosis		X	X

Source: The US Medical Eligibility Criteria for Contraceptive Use [88].

such as flushing COCPs down the toilet or removing vaginal rings [92,93]. Female adolescents who report using only condoms, frequently request emergency contraception, or repeatedly "lose" their COCPs may be experiencing reproductive coercion and partner violence [94–96]. Clinicians should assess for reproductive coercion before assuming that using condoms only, COCPs, or even no contraceptive at all are the patient's choice, because her partner may be controlling such reproductive decision-making [97].

LARC is an important harm reduction strategy for female adolescents in abusive and controlling relationships where they are at increased risk for unintended pregnancy. In particular, the copper IUD may be ideal for girls who are looking for a discrete contraceptive method that will not affect menstrual cycle regularity. In addition, if the patient is worried that her partner may feel the strings, the strings can be cut high in the os as long as she is counseled that removal may be more challenging [84].

Discussion

Female adolescents want and often need LARC. They are more likely to be adherent with LARC and thus avoid unintended pregnancy until they are ready for child-bearing. A recent prospective cohort study of women aged 14 to 45 found that women younger than 21 were twice as likely to have an unintended pregnancy on pills, patch, or ring as older women [98]. Indeed, both the American College of Obstetricians and Gynecologists and Society of Family Planning support the use of LARC in nulliparous and adolescent patients [22,23,74]. The findings described here support the use of LARC as first-line contraception in adolescents. When presented with information about LARC, adolescents are more likely to request LARC and are satisfied with LARC. Clinicians have an important role in

counseling about and providing LARC to their adolescent patients as well as supporting them in managing associated side effects. This review article can be used as a resource for contraceptive counseling visits and for the continuing education of health professionals providing adolescent reproductive health care. Major health professional associations should make strong recommendations to encourage LARC use among adolescents and their adult caregivers and should offer training for health care providers serving adolescents.

Acknowledgments

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