Updates in Contraceptive Counseling for Adolescents

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Rates of US teen pregnancy have been declining since the 1990s, with all-time low rates noted in 2009.[1] These declining rates are attributed partially to decreased sexual activity, but even more so, to improved contraceptive use among adolescents.[1-3] The use of dual contraception (ie, simultaneous use of a condom with another effective contraceptive method)[1,2] and use of more-effective contraceptive methods, such as long-acting reversible contraceptives (LARCs), have increased in this population.[4] Adolescents should be encouraged to use dual contraception because condoms protect against sexually transmitted infections (STIs) and provide improved pregnancy prevention.[5] The American Academy of Pediatrics (AAP) and the American College of Obstetricians and Gynecologists (ACOG) recommend that providers also should encourage adolescents to use LARCs because they are the most effective contraceptive methods.

Rates of Contraceptive Method Failure

Providers should consider each method's "perfect use" and "typical use" failure rates when counseling adolescents about available contraceptive methods. Each contraceptive method has an inherent or "perfect use" failure rate, defined as the percentage of female users experiencing an unintended pregnancy during the first year of use when the method is used consistently and correctly. "Typical use" failure rates take into account incorrect or inconsistent use that commonly occur (Table I). For example, the perfect use failure rate for combined oral contraceptive pills is 0.3%, but the typical use failure rate for this daily use method is 9%[6] and likely is greater among adolescent users.[7] Providers should counsel patients about the varying efficacy rates and present contraceptive options in a tiered fashion on the basis of their typical use failure rates,[6,8-10] with the most effective methods presented first.[8,10] Adolescents should be encouraged to strongly consider using the most effective methods for which they are medically eligible.

Available LARC Methods

LARC methods, which include intrauterine devices (IUDs) and subdermal contraceptive implants, are the most effective reversible contraceptives, with failure rates <1% for both typical and perfect use.[6] Because LARC methods do not require daily, weekly, or monthly adherence and cannot be discontinued without a medical appointment, method continuation rates at 1 year are >75% among LARC users attempting to avoid pregnancy, which is significantly greater than other reversible contraceptives like the birth control pill (67%) or Depo-Provera (56%; manufactured by Pfizer, New York, New York) (Table I).[6] The AAP and ACOG both firmly agree that LARC methods should be considered first-line contraceptives for adolescents and young adults, including nulliparous girls.[10,11]

The AAP also recommends that pediatricians should be knowledgeable about all contraceptives, including LARCs, and should have a referral network in their community who can provide these services to facilitate access to effective contraceptive care.[10] Furthermore, providers should be aware that in most states, adolescents are able to consent to confidential contraceptive care, including LARC insertion, without parental consent, although some states have age restrictions (ranging from 12 to 16 years of age) or other prerequisite conditions (like being married or having been pregnant). State-specific details are available at the Guttmacher Institute State Policies in Brief.[12]

The Contraceptive Implant

The etonogestrel-releasing implant, Nexplanon (Merck and Co, Inc, Whitehouse Station, New Jersey), is placed subdermally in the nondominant upper arm during a simple office procedure that usually takes 1-2 minutes. These radiopaque implants gradually release the progestin etonogestrel, which inhibits ovulation and thickens the cervical mucus, thereby inhibiting sperm penetration and providing a contraceptive effect.[13,14] Typical and perfect use failure rates are equivalent for this method at 0.05%, making the implant the most effective reversible contraceptive available.[6] Implants are effective for up to 3 years and then must be removed or replaced.

The most common adverse effect experienced by implant users is irregular vaginal bleeding. One study, which integrated 11 clinical trials and included 942 female patients using the first-generation implant, demonstrated an average of

AAP	American Academy of Pediatrics
ACOG	American College of Obstetricians and Gynecologists
IUD	Intrauterine device
LARC	Long-acting reversible contraceptive
PID	Pelvic inflammatory disease
STI	Sexually transmitted infection
US MEC	US Medical Eligibility Criteria

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Table I. Efficacy and 1-year continuation rates for contraceptive methods

Methods	Typical use*	Perfect use†	Continuation rates at 1 year‡
None	85	85	
Spermicides	28	18	42
Fertility awareness methods	24		47
Withdrawal	22	4	46
Female condom	21	5	41
Male condom	18	2	43
Diaphragm	12	6	57
Combined pill and progesterone-only pill	9	0.3	67
Contraceptive patch	9	0.3	67
NuvaRing	9	0.3	67
Depo-Provera	6	0.2	56
Paragard IUD	0.8	0.6	78
Mirena IUD	0.2	0.2	80
Single-rod contraceptive implant	0.05	0.05	84
Female sterilization	0.5	0.5	100
Male sterilization	0.15	0.1	100

*Percentage of females experiencing unintended pregnancy during first year of method use with typical use.
†Percentage of females experiencing unintended pregnancy during first year of method use with perfect use.
‡Among couples attempting to avoid pregnancy.
Source: Hatcher et al.[6]

only 17.5 days of bleeding or spotting per 90-day period within the first 2 years of use, which is less than the average menstrual cycle. Furthermore, 21% of female users reported amenorrhea, 33% reported infrequent bleeding, and only 23% reported prolonged or frequent bleeding. In this study, only 14% of subjects in the US or Europe discontinued use of the method as the result of irregular bleeding concerns.[15]

To improve acceptance and continuation of the contraceptive implant, it is imperative that patients receive accurate counseling before insertion clearly describing possible adverse effects they may experience. Providers should counsel future implant users that: (1) their menstrual cycle will change and will likely be unpredictable; (2) the mean number of bleeding or spotting days will likely be less than their normal menstrual cycle; and (3) a small percentage of individuals may experience prolonged or frequent bleeding.[16]

IUDs

There are 4 IUDs available in the US: Mirena (Bayer HealthCare Pharmaceuticals Inc, Whippany, New Jersey; 52 mg of levonorgestrel), approved for up to 5 years of use,[17] Skyla (Bayer HealthCare Pharmaceuticals Inc; 13.5 mg of levonorgestrel), approved for up to 3 years of use,[18] Liletta (Odyssea Pharma SPRL, Parsippany, New Jersey; 52 mg of levonorgestrel), approved for up to 3 years of use,[19] and Paragard (Teva Women's Health, Inc. North Wales, Pennsylvania), the nonhormonal copper-containing IUD, approved for up to 10 years of use.[20] The primary IUD contraceptive mechanism of action is via release of the progestin levonorgestrel or copper ions, both of which inhibit sperm motility and function, thereby interfering with fertilization. Thus, IUDs primarily interfere with prefertilization processes, rather than inhibiting implantation of a fertilized ovum.[14] Typical and perfect failure rates for IUDs are <1%[6] and like the contraceptive implant, IUDs also are rapidly reversible to baseline fertility once removed.[21]

IUDs can be easily and safely inserted in a simple office procedure regardless of parity; however, fear of pain during placement may deter some adolescents from choosing an IUD. Studies have shown analgesics such as lidocaine formulations and naproxen may somewhat alleviate this pain[22] and may be used in conjunction with anxiolytics or paracervical block if necessary.[11] Once inserted, IUD continuation rates at 1 year are quite high, ie, approximately 78% for copper-containing IUD users and 80% for levonorgestrel-releasing IUD users (Table I).[6] Satisfaction rates also tend to be greater with IUDs compared with short-acting methods. In one study, more than 80% of IUD users were satisfied with their method 12 months after insertion, compared with only 53% of oral contraceptive-users.[23] The most common reasons for discontinuing IUD use were irregular bleeding and abdominal cramping (reported in 14% of copper-containing IUD users and 5% of levonorgestrel-releasing IUD users).[23]

Use of the Medical Eligibility Criteria to Determine Method Contraindications

The Centers for Disease Control and Prevention developed the US Medical Eligibility Criteria (US MEC) for Contraceptive Use in 2010 to assist providers in prescribing appropriate contraceptive methods for patients with various medical conditions. The US MEC provides recommendations for more than 60 medical conditions, rating the risks and advantages for use of each contraceptive method in that condition on a scale of 1-4, with risk increasing as the number increases.[24] For example, use of combined hormonal contraceptives (including the birth control pill, patch, and vaginal ring) is contraindicated in adolescents experiencing migraine headaches with an aura and has been classified as category 4, meaning these methods would impose unacceptable health risk if used in this condition. Conversely, initiating the levonorgestrel-containing IUD or the contraceptive implant in this condition is classified as category 2, meaning advantages generally outweigh the risks, and initiation of the copper-containing IUD is category 1 because there is no restriction for its use.[24]

There are actually far fewer absolute contraindications to the use of LARC methods among adolescents compared with other short-acting contraceptives.[24] After publication of the US MEC, a companion document, entitled US Selected Practice Recommendations for Contraceptive Use, 2013, was developed, which provides guidance about method use, initiation, and target populations that are good candidates for particular methods.[9] These 2 documents can guide decisions about appropriate contraceptive methods for a specific patient; however, providers must still consider each individual patient's circumstances when choosing a suitable method.[9,24]

Rates of LARC Use

Rates of LARC use in the US, especially among adolescents and young adults, are low but slowly increasing. In the 2011-2013 National Survey of Family Growth, only 11% of 15-24 year olds who were using a contraceptive method were using LARC, compared with 47% using the oral contraceptive pill and 21% using a condom.[25] These other more prevalent methods are less effective, with typical failure rates of 9% for the combined pill and 18% for the male condom, compared with <1% for the LARC methods.[6] It is noteworthy, however, that the use of LARCs in this age group has increased significantly during the past 10 years, from about 1% in 2002 to 11% in 2011-2013.[25] This increase is likely the result of AAP[10] and ACOG[11] recommendations, improved education among providers, and improved access to LARC methods for adolescents and young adults.[4]

Changes in insurance coverage of LARCs also may have contributed to increased usage. The Affordable Care Act enacted in 2010 mandates private health plans to cover all Food and Drug Administration-approved contraceptive methods without a copayment or deductible.[26] Even if patients have high upfront costs, however, LARCs have been shown to be more cost-effective methods over their years-long course compared with shorter forms of contraception.[27]

Dispelling Myths and Misconceptions of IUDs

Despite recent increases in LARC usage, there are many misconceptions about use of these methods in adolescents and young adults. Medical providers frequently have concerns about appropriateness and safety of LARCs in young nonmonogamous or nulliparous female patients.[28] In a survey given to almost 1200 US publically funded family planning facilities, only about 40% of facilities often or always discussed IUDs or implants with teens seeking contraception, compared with 80%-100% discussing short-term hormonal methods.[29] This finding clearly demonstrates provider bias and discomfort using these methods in young female patients.

One of the most common misconceptions about IUDs is an association with pelvic inflammatory disease (PID), especially in young women. Infections have been associated with earlier generations of LARCs like Norplant and the Dalkon Shield; however, the current LARCs have been improved substantially to address flaws detected in earlier models and have superior adverse effect profiles compared with older methods.[30] The World Health Organization's IUD clinical trial data of almost 23 000 IUD users showed that the risk of developing PID is slightly elevated during the initial 20 days after insertion; however, the absolute risk of developing PID is small.[31] After the initial 20-day period, the PID rate is about 1.6 cases per 1000 woman-years of use, which is similar to baseline risk in non-IUD users.[11,31] In fact, even if an asymptomatic chlamydia infection is present at the time of IUD insertion, it is unlikely to progress to PID if the infection is treated quickly. Furthermore, a meta-analysis demonstrated that the risk of developing PID when an IUD is inserted into a female with an STI is 0%-5%, which is only slightly greater than 0%-2% risk of developing PID when inserted into a female user without an STI.[32] Providers should consider same-day IUD placement rather than delaying to rule out the presence of an asymptomatic infection as eliminating the need for a follow-up appointment makes IUDs more accessible.

One myth about IUDs is the false association with infertility. Evaluation of almost 1900 infertile women in a case-controlled study showed no association between infertility and previous use of the copper-containing IUD. There was an association, however, between tubal infertility and detection of chlamydia antibodies, linking infertility with previous STIs.[33] Furthermore, a study of more than 100 Norwegian females who had discontinued IUD use to become pregnant demonstrated a 94% pregnancy rate, which is comparable with baseline non-IUD user rates.[21]

Another misconception about IUDs frequently held by providers is the concern for high rates of IUD expulsion in nulliparous women. Study results are inconsistent on this issue; some studies show no difference in expulsion rates in nulliparous compared with parous women,[34] although more studies show slightly greater rates of expulsions occurring in nulliparous women.[35] Despite this slight increase in complication in the nulliparous population, IUDs are well tolerated and very effective methods of contraception for young, nulliparous women.[10,11]

Young Women's Concerns about LARCs

Adolescents know very little about LARC methods in general. In a survey given to more than 100 young female adolescents, approximately 60% of adolescent and young female adults had never heard of the IUD,[36] although 54% of young female adults had a positive attitude about the IUD after only a 3-minute educational intervention.[36] Young women who are aware of IUDs and the contraceptive implant have described varying concerns about these methods. They consider LARCs to be "more risky," "scary," and less appealing forms of contraception compared with the more familiar and popular oral contraceptive pill.[37] Young women also have cited concerns about cost, fear of pain during insertion,[11,38] and concern for developing adverse effects[38] as reasons to choose non-LARC methods.

LARC Use When Barriers Are Eliminated (The Contraceptive CHOICE Project)

To further understand why women choose different contraceptive options, the Contraceptive CHOICE Project was launched in St Louis in 2007. This large study evaluated the effects of removing 3 large barriers to LARC use among reproductive-aged female subjects interested in contraception: high cost, lack of education, and limited access to contraceptive services. More than 9000 participants (of whom 1400 were teens 14-19 years of age) received comprehensive,

accurate, and unbiased counseling in an efficacy-based tiered fashion.[39] They were then provided with the contraceptive method of their choice, cost-free, for 2-3 years.

Overall, 75% of all study participants (41) and 72% of participating teens chose a LARC method (40), which is significantly greater than US rates of LARC. Continuation rates for teens were significantly greater for LARC users compared with non-LARC users at both 1 year (82% vs 49%, respectively) and 2 years (67% vs 37%, respectively) after insertion. Furthermore, LARC was 20 times more effective than the combined hormonal contraceptive methods in preventing pregnancy.[40] The annual rate of pregnancy among teens in the CHOICE Project was 34/1000, which is significantly lower than the rate in sexually experienced teens in the US of 159/1000 in 2008.[39] This Project clearly demonstrates that removing barriers and providing comprehensive contraceptive counseling via a tiered approach can significantly increase LARC method use among teens and consequently reduce the rate of teen pregnancy.

LARC Resources for Providers

The recommendation of a trusted provider can strongly impact adolescent and young adult females' contraceptive choices.[38] It is therefore vital for providers who counsel young women about available contraceptive options to have access to accurate and updated information to relay to their patients to help them choose appropriate and effective methods. **Table II** (available at www.jpeds.com) lists online resources available for providers and patients to learn more about the different contraceptive options available. Organizations such as the Centers for Disease Control and Prevention and Association of Reproductive Health Professionals have Web pages dedicated to providing up-to-date information for providers regarding contraception. Additional provider resources include training videos and slide sets (from Contraceptive Technology) and a free comprehensive evidence-based curriculum covering reproductive health topics (from Physicians for Reproductive Health).

LARC Resources for Adolescents and Young Adults

Organizations also have created Web sites with contraception information directed toward young women. For example, bedsider.org contains updated information that is developmentally appropriate for teens and young adults along with video clips of young women and men describing their real-life experiences with different forms of contraception. Many sites also have a search tool to find providers in a region that are able to provide contraceptive services, including LARC insertion.

Providers who are interested in receiving training on LARC insertions can contact their professional organization (such as AAP or Society for Adolescent Health and Medicine) or the manufacturing company to facilitate scheduling a training. Providers who are not trained in inserting LARCs or are not comfortable prescribing contraception should have a referral network composed of local providers who are able to provide these services to adolescent and young adult women to help facilitate access to appropriate and effective care.[10]

LARCs are the most effective reversible forms of contraception and are safe and appropriate for use in young female patients. These methods are also more cost-effective and have greater satisfaction and continuation rates compared with shorter-acting methods. LARCs also are easier to use than other methods, which require daily, weekly, or monthly compliance.[11] Providers should highly recommend that young women use a condom in addition to an effective form of contraception for maximum pregnancy prevention and protection against STIs. Providers who care for adolescents and young adults have a responsibility to recommend the most effective contraception methods and assist their patients in accessing this care.[10,11] ■

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Table II. Online resources for providers and adolescents

Sponsoring organization	URL
Online resources for providers	
Centers for Disease Control and Prevention	http://www.cdc.gov/reproductivehealth/unintendedpregnancy/contraception.htm
Centers for Disease Control and Prevention	http://www.cdc.gov/teenpregnancy/health-care-providers/index.htm
Association of Reproductive Health Professionals	http://www.arhp.org/Topics/Contraception
Washington University School of Medicine	http://www.choiceproject.wustl.edu/#RESOURCES
Contraceptive Technology	http://www.contraceptivetechnology.org/reproductive-health-resources/training-videos-slides/
Physicians for Reproductive Health	http://prh.org/teen-reproductive-health/arshep-explained/
Centers for Disease Control and Prevention	http://www.cdc.gov/reproductivehealth/unintendedpregnancy/usmec.htm
Centers for Disease Control and Prevention	http://www.cdc.gov/reproductivehealth/unintendedpregnancy/usspr.htm
NYC LARC Access Taskforce	http://www.iudtaskforce.org/
Online resources for adolescents	
The National Campaign to Prevent Teen and Unplanned Pregnancy	http://bedsider.org/*
Office on Women's Health	http://girlshealth.gov/body/sexuality/birthcontrol.html
The National Campaign to Prevent Teen and Unplanned Pregnancy	http://stayteen.org/sex-ed/birth-control-explorer
The American Congress of Obstetricians and Gynecologists	http://www.acog.org/Patients
Columbia University, New York, New York	http://www.goaskalice.columbia.edu/category/sexual-reproductive-health
Association of Reproductive Health Professionals	http://larc.arhp.org/*

*Contains search tool to find providers in area for reproductive services, including LARC insertion.