

Improvements in Contraception for Adolescents

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Abstract

Purpose of Review Improved contraceptive use has been cited as the main contributor to the dramatic decrease in adolescent pregnancy and birth in the USA. This review will explore empirical literature that underlies the recent trends in contraceptive use for adolescents.

Recent Findings Three major categories of findings were identified in our review. First, formal contraceptive practice recommendations from the Centers for Disease Control and Prevention remove some barriers to contraceptive care that may be particularly relevant for adolescents. The most important of these (1) indicates that the use of any contraceptive should not be limited to age or parity alone and (2) supports immediate initiation when appropriate. Implementation of these recommendations into clinical care is variable, and barriers to adopting evidence-based practices are complex. Second, a substantial body of literature has accumulated around the use of long-acting reversible contraception (LARC) in adolescents. Adolescents have high acceptance of LARC when it is offered, high continuation, and high satisfaction. Interventions that improved adolescent contraception with increased LARC use have resulted in decreased teen

pregnancy, birth, and abortion. Third, emerging research focuses on innovations regarding approach and location of contraceptive service delivery for adolescents, including non-primary care clinical settings, school-based settings, and over-the-counter.

Summary Improved contraception for adolescents has been multifactorial and impactful. Dissemination and implementation of these recent findings as well as ongoing study of innovations that meet the unique needs of adolescents will continue this trend.

Keywords Adolescents · Contraception · Long-acting reversible contraception · Confidentiality · Barriers · Contraceptive knowledge and attitudes

Introduction

Over the past three decades, the USA has seen dramatic declines in teen pregnancy and teen births. The teen birth rate was at its peak in 1991 with 61.8/1000 15–19-year-old females giving birth annually. In 2015, the rate had dropped nearly two thirds to 22.3/1000 15–19-year-old females. Declines have been seen across all racial and ethnic groups [1]. This is an important public health success as the large majority of teen births are unplanned and undesired and they have substantial impact on the individual, family, and societal levels [2]. Some of the early decline in teen birth rate can be attributed to delay in initiation of sexual activity [3]. However, a large majority of the decline through 2002 and nearly all of the recent decline is due to improved contraceptive use [3, 4]. This review will explore the recent empirical literature that underlies these trends in improved contraceptive use for adolescents.

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Contraceptive Use by Adolescents

The complex physical, social, emotional, cognitive, and sexual progression of adolescent development is important to understand when providing contraceptive care to young people. Early adolescence, often from ages 11 to 14, is defined by pubertal onset and progressive physical change. Adolescents may explore sexually, but most have not yet engaged in sexual intercourse. Cognitive abilities during these years are generally tangible; as such, counseling and interaction should be developmentally appropriate and clear [5]. The middle adolescent years between ages 14 and 17 allow for adolescents to discover their unique identities and transition to independence. Adolescents start to engage in more abstract thinking and are able to judge the future consequences of current actions [5]. The later adolescent years (ages 18–21) are marked by complete physical maturity, more advanced critical thinking, and an increase in the involvement in more serious romantic relationships. Later adolescents have advanced decision-making capacity and demonstrate accountability for their own sexual and reproductive choices. This allows more nuanced discussions that highlight the importance of healthy decisions and the potential long-term consequences of one's health choices [5]. Furthermore, demanding situations can lead to regression back to earlier developmental patterns of thinking and relating [6]. It is important for providers to keep in mind that each adolescent is unique and develops at her own pace, but considering the adolescent's developmental capacity during a clinical interaction may help guide contraceptive counseling and give insights into adolescent decision-making.

The National Survey of Family Growth (NSFG) estimated that in 2011–2013, 44% of female and 47% of male adolescents were sexually active [7]. At the time of first sexual encounter, 79% of female adolescents and 84% of male adolescents used a method of contraception. The probability of having a teen birth is two to five times higher for those who do not use a method of contraception at first sex than that for those who do. Older adolescents are more likely to use contraception at first sexual intercourse than their younger counterparts. The most widely used contraceptive method among the adolescent population (male and female) is the male condom [7]. In 2011–2013, 97% of sexually active female adolescents reported ever using a condom, this was followed by 60% who had ever used the withdrawal method, and 54% reported having ever used the pill. Report of ever use of the patch and injection had declined to 2 and 15%, respectively. Intrauterine device (IUD) and implant use in this analysis were 3 and 2%, respectively, which represents an eightfold increase

since 2002 [8]. The use of emergency contraception also increased from 8% in 22% among sexually active female adolescents during this time [7].

Guidance for Contraceptive Use in Adolescents

Contraceptive options for adolescents, regardless of age and stage of development, are not substantially different than those for adult women. In 2010, the Centers for Disease Control and Prevention (CDC) released the Medical eligibility criteria for contraceptive use (MEC) [9]. This adaptation of guidance from the World Health Organization gives providers guidance about *who* can use *what* method. The MEC makes contraceptive recommendations for conditions that may affect eligibility of safe use; each contraceptive method is classified into one of four categories. The MEC categories for contraceptive use for those under 18 and for those who are nulliparous and have other conditions common in adolescence that could affect contraceptive eligibility are noted in Table 1. Providers can interpret this table, and the MEC as a whole, simply: contraceptive options should not be restricted based on age, nulliparity, and most other factors common in adolescence. This guidance is regularly updated based on a review of empirical findings from around the world and then is adapted on the country level. An update to the initial guidance for the USA was released in 2016 [10••]. There were no amendments to the contraceptive recommendations specific to adolescents.

In 2013, the CDC released the Selected Practice Recommendations for Contraceptive Use (SPR). An adjunct to the MEC, the SPR describes how contraceptives should be provided [11]. This is similarly updated regularly to reflect the best available evidence, and it was similarly updated in 2016 [12••]. Recommendations in the SPR include timing of method initiation, tests and exams required prior to initiation, need for contraceptive backup, recommendations for follow-up, and management of common problems while taking contraception including bleeding while taking contraceptives, missed contraceptive use, and management of pelvic inflammatory disease with an IUD in situ. Best practices in providing contraception are the same regardless of age; however, recommendations in the SPR may be particularly important for reducing barriers to contraception for adolescents.

The SPR recommends that all contraceptive methods can be provided or inserted at any time if the provider can be reasonably certain that a woman is not pregnant. A provider can be reasonably certain that a woman is not pregnant by history if she indicates “yes” to one of the following: (1)

Table 1 Medical eligibility criteria for contraceptive use for adolescents and conditions common in adolescence (adapted from the US Medical Eligibility Criteria for Contraceptive Use, 2016 [10••])

	Combined hormonal contraceptive	Progestin injectable	Progestin implant or pills	Intrauterine device
Age (menarche to <18 years)	1	2	1	2
Nulliparous	1	1	1	2
Menarche to <18 years and BMI ≥ 30 kg/m ²	2	2	1	1
Current purulent cervicitis, chlamydia, or gonorrhea infection	1	1	1	4 initiation 2 continuation
Vaginitis, including bacterial vaginosis and trichomoniasis	1	1	1	2
Current pelvic inflammatory disease	1	1	1	4 initiation 2 continuation
Past pelvic inflammatory disease	1	1	1	1 with subsequent pregnancy 2 without subsequent pregnancy
Other factors related to STIs	1	1	1	2

BMI body mass index, *STI* sexually transmitted infection

1 = a condition for which there is no restriction for the use of the contraceptive method; 2 = a condition for which the advantages of using the method generally outweigh the theoretical or proven risks; 3 = a condition for which the theoretical or proven risks usually outweigh the advantages of using the method; 4 = a condition that represents an unacceptable health risk if the contraceptive method is used

having the first day of her last menstrual period within the past 7 days, (2) not having had sex since the start of her last normal menstrual period, (3) is within 7 days of a miscarriage or abortion, (4) is within 4 weeks postpartum, (5) is fully or near fully breastfeeding, amenorrheic and <6 months postpartum, or (6) has been correctly and consistently using a reliable method of contraception. Several studies have validated the high negative predictive value (NPV) of using these criteria as a pregnancy checklist [13–15]. One study used the pregnancy checklist with adolescents aged 14–19, specifically, and found a 96% negative predictive value in a population with a high rate of pregnancy [15]. Min and colleagues found that combined with a negative pregnancy test, the checklist had an NPV of >99% in a large sample of women, including adolescents aged 14 and older [14]. The SPR guidance supports initiation of all contraceptive methods, including IUDs and implants, in this case. Furthermore, even in situations where a provider cannot be reasonably certain that a woman or adolescent is not pregnant (i.e., recent unprotected sex), the benefits of initiating hormonal contraceptives, including the implant, outweigh the risks of delaying initiation [12••]. In these situations, a pregnancy test should be repeated in 2–4 weeks. Providers should offer a bridge method to adolescents who desire an IUD in situations where they cannot be reasonably certain that she is not pregnant [12••].

Another SPR recommendation that reduces barriers to contraceptive initiation is to screen for sexually transmitted infections based on age and behavior risk, but not as a prerequisite for IUD placement. An adolescent

who has not yet been screened for STIs can be screened and have her IUD inserted on the same day [12••]. A recent systematic review of IUD use in adolescents and young women found that the incidence of pelvic inflammatory disease (PID) was very rare or non-existent and generally did not require removal of the IUD for successful treatment [16]. Another analysis from a large cohort study of adolescents and adult women found the incidence of PID was rare even with positive chlamydia or gonorrhea testing at the time of insertion [17].

There have been multilevel efforts to disseminate guidelines for clinicians who care for adolescents [6, 18•, 19, 20–21]. Unfortunately, a baseline study of 51 health centers in ten communities with high adolescent pregnancy rates that were participating in multicomponent community-based teen pregnancy prevention initiatives identified that implementation of guidelines in practice is variable. Health centers frequently provided adolescent-friendly services such as same-day appointments, efforts at cost reduction, and after-school appointments. However, less than half had same-day initiation of contraception or had emergency contraception available, and only 12.5% “always” had IUDs available to adolescents [22]. Two years later, 52% of health centers reported an increase in provision of evidence-based practice, while approximately one third reported a decrease over that time [23•]. Health system factors like having strong support from health center leadership, strong communication with staff and the community,

and staff attitudes that favored implementation of the evidence-based practices were identified as facilitators in different settings [24].

Provider-level factors have also been identified as barriers to fully adopting these evidence-based recommendations into practice. Adolescent providers may be less reluctant to counsel and recommend LARC methods (or non-LARC methods) that are not readily available or stocked in the clinic or facility [25]. Other studies have found that providers remain reluctant to provide contraceptives, especially LARC, on the same day [26]. More recently, physician attitudes about contraceptives and the influence on their contraceptive counselling for adolescents have been explored. Of pediatric providers, few had favorable views on adolescent IUD use due to concerns for adverse reproductive outcomes and the possibility that the adolescent would tolerate the exam and insertion poorly. Most did not include this method in routine counseling. Many of these providers attributed their attitudes towards a lack of current knowledge regarding the method and how to counsel adolescent about the methods appropriately [27]. A survey of Mississippi and Louisiana family physicians found that only a minority discussed LARC methods with female adolescents [28]. Practitioners were more inclined to discuss IUD use if they had exposure during their residency training, had onsite access to the devices, and were confident and comfortable with the counselling [28]. Rubin and colleagues conducted qualitative interviews among family physicians, pediatricians, and obstetricians-gynecologists practicing in urban medical centers and found that physicians utilized a more patient-centered approach when discussing general contraceptive counseling and non-LARC methods with adolescents [29]. These providers assumed a more protective attitude and applied more stringent criteria for potential IUD candidates and viewed patients who were more reliable, mature, and in monogamous relationships to be better candidates for insertion [29]. These studies highlight the complexity of pursuing best practices and implementing change at the provider, system, and community levels.

Adolescents' Use of Long-Acting Reversible Contraception

Owing to the guidelines from the CDC and several key studies, the past several years have seen notable shifts in the conversation around contraceptive practices for adolescents. Perhaps the most notable and enthusiastic of these is the conversation around adolescents' use of long-acting reversible contraceptives (LARCs): intrauterine devices and contraceptive implants. In December 2007, the American College of Obstetricians and Gynecologists (ACOG) first released its Committee Opinion that the use of IUDs was appropriate for

adolescents. This was reaffirmed in 2012 and 2016, with the addition of contraceptive implants. The Committee Opinion commented on the high efficacy and satisfaction of the IUD and implant, as well as a disproportionately high rate of unintended pregnancy for adolescents, and indicated that increased LARC access would be beneficial for this population [30]. In 2014, the American Academy of Pediatrics released a policy statement and an accompanying technical document regarding contraception for adolescents. In addition to recommending that pediatricians regularly conduct a sexual history, encouraging abstinence, and counseling their adolescent patients on the full range of contraceptives, these documents specifically encourage pediatricians to perform contraceptive counseling starting with methods that have the highest contraceptive efficacy first, specifically including IUDs and implants [31, 32••].

The Contraceptive Choice Project, a large cohort study in St. Louis that offered no-cost contraception with structured contraceptive counseling, has contributed substantially to the empirical literature about adolescents and LARC. The study enrolled 9256 women, including 1404 adolescents and young women aged 14–19, and followed participants for 2–3 years. The study found that adolescents adopted LARC for contraception at high rates and rates similar to adult women. In this sample, 72% of those under 20 initiated a LARC method. There were differences by age: those 14–17 were more likely to select an implant and those 18–19 were more likely to select an IUD [33•]. Not only were adolescent participants highly likely to initiate a LARC method, but they also continued them at high rates and at much higher rates than shorter acting methods (pills, patch, ring, and injection). Continuation of LARC methods for adolescents was 82.1, 68, and 52.6% at 1, 2, and 3 years, respectively. In contrast, continuation rates for shorter-acting methods over the 3-year follow-up were 46.9, 32.9, and 21.2% [34]. In a study of unintended pregnancy in the cohort, women who used the pill, patch, or ring were more than 22 times as likely to experience an unintended pregnancy compared those who used a LARC method. This was amplified by age; those under 21 who used the pill, patch, or vaginal ring were twice as likely as older women using the same methods to experience an unintended pregnancy (HR 1.9). However, there was no difference in unintended pregnancy by age in LARC users [35•]. During the study time period, the teen pregnancy, birth, and abortion rates in St. Louis were 75% below the national average [36••].

Additional studies in different populations showed reinforcing results, though most do not reach the high level of

LARC acceptance as seen in the Choice project. A statewide initiative in Colorado-trained providers supported clinics and reduced financial barriers to contraceptive methods. As a result, the use of LARC methods increased in teens and young women from 5 to 19%; this was associated with a decrease in adolescent fertility rates, abortion, and WIC utilization [37••]. A 2016 systematic review and meta-analysis of LARC use in 12 studies including nearly 5000 females under 25 years old demonstrates a high continuation rate at 1 year (84% overall; 74% IUD and 84% implant) [38]. Additionally, particular attention has been paid to providing LARC to postpartum adolescents showing similar high rates of continuation [39••, 40, 41], dramatic reduction in repeat teen birth [39••, 42], and cost-savings [43].

Several studies have also assessed experiences with LARC and adolescents. Teal and colleagues report a series of over 1000 IUD placements for 13–24-year-old nulliparous and parous females. Successful placement was accomplished by an advance practice clinician in 96% of first attempts and in an additional 78% of those who required and requested a second attempt. Expulsions were experienced by 3% in this series and did not differ by age, parity, or device type [44]. Some studies suggest that compared to older or parous women, younger women or nulliparous women have higher rates of IUD expulsion when placed in the interim setting [45, 46], while others do not [47–49]. Even if there was a higher rate of expulsion, utilization and continuation of the highly effective method remains high and higher than other shorter-acting methods [16, 34, 38, 50] and is therefore not a reason to deter selection of an IUD.

Similar to adult women, adolescents report high levels of satisfaction with LARC devices [38]. The most frequent reasons for dissatisfaction resulting in request for removal of the IUD are pain and bleeding [16, 51]. The most common reason driving request for removal of the contraceptive implant is dissatisfaction with the bleeding profile [51–54]. Lunde and colleagues found in a qualitative study that adolescents and young women recall being counseled on the potential side effects of the contraceptive implant, but they felt unprepared when they experienced side effects. They requested personal stories and accounts of the side effect experience to help them understand. Importantly, half of participants in this study who discontinued the implant did not initiate another method of contraception despite a desire to not become pregnant [53]. These concepts have been reported by other researchers as well. Specifically, adolescents report discomfort with a lack of control over what is happening with their bodies, and this was exacerbated when patients experienced a delay in removal by request [55, 56]. This is an important and understudied area that has potential for contraceptive coercion on the part of the provider.

Barriers to Contraceptive Use for Adolescents

While the use of LARC can reduce repeated barriers that young people may experience with accessing clinics or pharmacies, several barriers to contraceptive use remain for young people including access to confidential services, cost and clinical operations, and adolescent and provider knowledge and attitudes [25, 57]. In addition to the provider-level barriers noted above, adolescents' knowledge and attitudes can also present a barrier. Lack of awareness, misconceptions, and misinformation regarding methods are common among adolescents and may prevent an adolescent from even considering a new method. Prior studies have shown that although adolescents may be informed regarding certain contraceptive methods like the IUD, they are not always familiar with how the method works or are able to identify key features of that particular method [58, 59]. A qualitative study evaluating adolescents aged 14–21 found that female adolescents had fears regarding IUD usage. They reported worrying about potential infertility with this method, the potential for side effects, changes in menses, possible pain with insertion, or having a foreign object in their body [60]. A mixed methods survey of female college students found that many overestimated the medical risks of LARC options, while underestimating the potential risks of non-LARC methods such as oral contraceptive pills [61]. Patients and providers also have different perspectives on the benefits and downsides to contraceptive attributes [62•]. When providing contraceptive counseling, providers should actively engage with the adolescent and incorporate her priorities, clarify her concerns, correct misinformation, and work collaboratively with her to select a method and discuss how to use it successfully. This patient-centered approach may help overcome some of these barriers [63, 64].

Confidentiality concerns may impact an adolescent's willingness to seek reproductive health services. Among adolescents and young adults aged 15–25, 7.4% stated that they would not seek sexual or reproductive health care because of concerns that a parent or legal guardian would find out [65]. Further, when looking specifically at younger people, 18% of those 15–17 years old said this was true for them. Only 38.1% of adolescents aged 15–17 reported spending time alone with the provider during a visit without a parent, guardian, or relative accompanying them in the room. Adolescents who spent time alone with a practitioner report being more likely to seek and receive sexual and reproductive health services [65]. Providers should familiarize themselves with state regulations regarding contraception. Twenty-six states and the District of Columbia allow minors (12

and older) to consent to contraceptive services without a parent. There are 20 states that allow only certain categories of minors to consent, and four states have no relevant policy [66]. ACOG, the American Academy of Pediatrics, and the Society of Adolescent Health and Medicine have recommendations for providers to support confidential contraceptive care for adolescents [32, 67, 68].

Issues of consent and confidentiality often overlap with cost for adolescents and can be a barrier to accessing care. Although the Affordable Care Act (ACA) guarantees insurance coverage of FDA-approved contraceptives [57] and expands the pool of women receiving coverage for contraception, there are gaps in contraceptive coverage for adolescents. Most adolescents have insurance through their parents, putting them at risk of breeches of confidentiality through insurance charges, explanation of benefits, and electronic medical records. Even when adolescents have private coverage through parental insurance, they may be less inclined to use it for fear of needing to justify or expound on the reason for the visit [30]. Adolescents who do not have insurance coverage or cannot use what they have secondary to confidentiality concerns should be referred to a Title X clinic or other provider who can offer confidential and affordable contraceptive services.

Beyond LARC and Barriers

Several researchers have explored new paradigms for contraceptive service delivery for adolescents. School-based health centers (SBHCs) have been identified in several states as an opportunity to meet the reproductive health care needs of adolescents where they are. While providing contraceptives in school settings is not legal in every state, school settings that have been able to provide reproductive health services have been successful [69]. Additional research understanding the implementation process and community buy-in is emerging [70–72]. Others have explored providing adolescents contraception in non-primary care settings, including hospitals [73] and emergency rooms [74–77]. In addition, studies on adolescents' ability to access hormonal contraception over the counter or via a pharmacist have paralleled the body of research in the adult population [78]. Adolescents express interest in this type of access, have the ability to understand the package instructions, and rarely have medical conditions that would be a contraindication to hormonal contraceptive use [79, 80].

Given that the most commonly used contraceptive methods in adolescents are contraceptive pills and condoms, we found relatively little in the empiric literature

about enhancing the use of these methods. Hall and colleagues demonstrated a text platform that increased contraceptive pill knowledge and that increased knowledge can increase pill continuation in adolescents [81, 82]. Condom use errors are common, and clinic-based education can decrease these errors [83]. Further, condom use is continuously negotiated with a relationship; supporting an adolescent in her ability to use condoms throughout relationship stages is important [84]. As such, encouraging a young person to *use a condom* is insufficient and providing details of how to initiate discussions of condom use with partners and demonstrations of correct use are needed. The use of a condom with another effective contraceptive may be ideal for adolescents in preventing both pregnancy and STIs; age, insurance coverage, previous STI/pregnancy, importance to avoid STI/pregnancy, and relationship factors have been associated with dual method use [85–89]. Additional empirical data about how best to support adolescents in using condoms, dual methods, and non-LARC methods is needed.

Conclusions

Substantial improvements have been seen in contraceptive delivery for, and use by, adolescents. However, there are several aspects of contraceptive provision for adolescents that we believe will benefit from further progress. Additional studies on effective and prospective management of contraceptive side effects, especially bothersome bleeding, would be beneficial. Improved systems, confidentiality, consent and insurance policies, and provider training designed to facilitate adoption of evidence-based practices are needed. From a contraceptive technology development standpoint, more options for long-acting and woman-controlled contraceptive methods or long-acting and multipurpose would be beneficial.

Compliance with Ethical Standards

Conflict of Interest Tiffany Hailstorks declares no conflict of interest. Melissa Kottke reports personal fees from Merck and Evofem, Inc.

Human and Animal Rights and Informed Consent This article does not contain any studies with human or animal subjects performed by any of the authors.

References

Papers of particular interest, published recently, have been highlighted as:

- Of importance
- Of major importance

1. Martin JA, Hamilton BE, Osterman MJ, Births in the United States. NCHS. Data Brief. 2015;2016(258):1–8.
2. Counting It Up: Key Data. 2013, The National Campaign to Prevent Teen and Unplanned Pregnancy.
3. Santelli JS, et al. Explaining recent declines in adolescent pregnancy in the United States: the contribution of abstinence and improved contraceptive use. *Am J Public Health*. 2007;97(1):150–6.
4. Lindberg L, Santelli J, Desai S. Understanding the decline in adolescent fertility in the United States, 2007–2012. *J Adolesc Health*. 2016;59(5):577–83. **This study evaluates the factors that underlie the more recent reduction in teen birth.**
5. Richards MJ, Buyers E. Update on adolescent contraception. *Adv Pediatr Infect Dis*. 2016;63(1):429–51.
6. Hartman LB, Monasterio E, Hwang LY. Adolescent contraception: review and guidance for pediatric clinicians. *Curr Probl Pediatr Adolesc Health Care*. 2012;42(9):221–63.
7. Martinez GM, Abma JC. Sexual activity, contraceptive use, and childbearing of teens aged 15–19 in the United States. NCHS Data Brief. 2015. No. 209.
8. Branum AM, Jones J. Trends in long-acting reversible contraception use among U.S. women aged 15–44. NCHS Data Brief. 2015;(188): p. 1–8.
9. U. S. Medical Eligibility Criteria for Contraceptive Use. MMWR Recomm Rep. 2010;59(RR-4):1–86.
10. Curtis KM, et al. U.S. Medical Eligibility Criteria for contraceptive use, 2016. MMWR Recomm Rep. 2016;65(3):1–103. **This is an essential document for the delivery of contraception to anyone of any age. Available in multiple modalities including an app and an e-book.**
11. U.S. Selected Practice Recommendations for Contraceptive Use, 2013. Adapted from the World Health Organization selected practice recommendations for contraceptive use, 2nd edition. MMWR Recomm Rep. 2013;62(RR-05):1–60.
12. Curtis KM, et al. U.S. Selected Practice Recommendations for Contraceptive Use, 2016. MMWR Recomm Rep. 2016;65(4):1–66. **This is an essential document for the delivery of contraception to anyone of any age. Available in multiple modalities including an app and an e-book.**
13. Tepper NK, Marchbanks PA, Curtis KM. Use of a checklist to rule out pregnancy: a systematic review. *Contraception*. 2013;87(5):661–5.
14. Min J, et al. Performance of a checklist to exclude pregnancy at the time of contraceptive initiation among women with a negative urine pregnancy test. *Contraception*. 2015;91(1):80–4.
15. Whiteman MK, et al. Using a checklist to assess pregnancy in teenagers and young women. *Obstet Gynecol*. 2014;123(4):777–84.
16. Usinger KM, et al. Intrauterine contraception continuation in adolescents and young women: a systematic review. *J Pediatr Adolesc Gynecol*. 2016;29(6):659–67.
17. Birgisson NE, et al. Positive testing for Neisseria gonorrhoeae and chlamydia trachomatis and the risk of pelvic inflammatory disease in IUD users. *J Women's Health (Larchmt)*. 2015;24(5):354–9.
18. Hoopes AJ, et al. 2016 updates to US Medical eligibility criteria for contraceptive use and selected practice recommendations for contraceptive use: highlights for adolescent patients. *J Pediatr Adolesc Gynecol*. 2017. **This is a summary of key components of the MEC and SPR with an adolescent focus.**
19. Centers for Disease Control. June 1, 2017; Available from: <https://www.cdc.gov/reproductivehealth/contraception/unintendedpregnancy/training.htm>.
20. ACOG Committee Opinion No. 577. Understanding and using the U.S. Selected Practice Recommendations for Contraceptive Use. *Obstet Gynecol*. 2013;122(5):1132–3.
21. Klein DA, Arnold JJ, Reese ES. Provision of contraception: key recommendations from the CDC. *Am Fam Physician*. 2015;91(9):625–33.
22. Romero LM, et al. Improving the implementation of evidence-based clinical practices in adolescent reproductive health care services. *J Adolesc Health*. 2015;57(5):488–95.
23. Romero LM, et al. Efforts to increase implementation of evidence-based clinical practices to improve adolescent-friendly reproductive health services. *J Adolesc Health*. 2017;60(3S):S30–7. **This is an important study that explores the challenges of putting evidence-based recommendations into practice. It is one of the few that look to implementation science in the field of inquiry.**
24. Hallum-Montes R, et al. Barriers and facilitators to health center implementation of evidence-based clinical practices in adolescent reproductive health services. *J Adolesc Health*. 2016;58(3):276–83.
25. Pritt NM, Norris AH, Berlan ED. Barriers and facilitators to adolescents' use of long-acting reversible contraceptives. *J Pediatr Adolesc Gynecol*. 2017;30(1):18–22.
26. Biggs MA, et al. Same-day LARC insertion attitudes and practices. *Contraception*. 2013;88(5):629–35.
27. Berlan ED, Pritt NM, Norris AH. Pediatricians' attitudes and beliefs about long-acting reversible contraceptives influence counseling. *J Pediatr Adolesc Gynecol*. 2017;30(1):47–52.
28. Rubin SE, et al. Louisiana and Mississippi family physicians' contraception counseling for adolescents with a focus on intrauterine contraception. *J Pediatr Adolesc Gynecol*. 2016;29(5):458–63.
29. Rubin SE, Campos G, Markens S. Primary care physicians' concerns may affect adolescents' access to intrauterine contraception. *J Prim Care Community Health*. 2013;4(3):216–9.
30. ACOG Committee opinion no. 539. Adolescents and long-acting reversible contraception: implants and intrauterine devices. *Obstet Gynecol*. 2012;120(4):983–8.
31. Committee on Adolescence. Contraception for adolescents. *Pediatrics*. 2014;134(4):e1244–56.
32. Ott MA, Sucato GS, Committee on Adolescence. Contraception for adolescents. *Pediatrics*. 2014;134(4):e1257–81. **This is the technical document published by the AAP that provides guidance for pediatricians in contraception for adolescents. It is important and pragmatic.**
33. McNicholas C, et al. The contraceptive CHOICE project round up: what we did and what we learned. *Clin Obstet Gynecol*. 2014;57(4):635–43. **A summary of key findings of the CHOICE project, adolescents and adults.**
34. Diedrich JT, et al. Three-year continuation of reversible contraception. *Am J Obstet Gynecol*. 2015;213(5):662 e1–8.
35. Winner B, et al. Effectiveness of long-acting reversible contraception. *N Engl J Med*. 2012;366(21):1998–2007. **This is a landmark study that demonstrates that LARC methods work much better at preventing unintended pregnancy in a cohort of women.**
36. Secura GM, et al. Provision of no-cost, long-acting contraception and teenage pregnancy. *N Engl J Med*. 2014;371(14):1316–23. **A CHOICE project study that demonstrates dramatic decreases in teen pregnancy, birth, and abortion during the study period.**
37. Ricketts S, Klingler G, Schwalberg R. Game change in Colorado: widespread use of long-acting reversible contraceptives and rapid decline in births among young, low-income women. *Perspect Sex Reprod Health*. 2014;46(3):125–32. **This study demonstrates the**

- impact of a state-wide approach to improving contraceptive delivery for young women.**
38. Diedrich JT, Klein DA, Peipert JF. Long-acting reversible contraception in adolescents: a systematic review and meta-analysis. *Am J Obstet Gynecol.* 2016.
 39. •• Tocce KM, Sheeder JL, Teal SB. Rapid repeat pregnancy in adolescents: do immediate postpartum contraceptive implants make a difference? *Am J Obstet Gynecol.* 2012;206(6):481.e1–7. **This is one of the first studies that shows the potential impact of offering teen mothers highly effective contraception after birth.**
 40. Wilson S, et al. Immediate postpartum etonogestrel implant: a contraception option with long-term continuation. *Contraception.* 2014;90(3):259–64.
 41. Cohen R, et al. Twelve-month contraceptive continuation and repeat pregnancy among young mothers choosing postdelivery contraceptive implants or postplacental intrauterine devices. *Contraception.* 2016;93(2):178–83.
 42. Damle LF, et al. Early initiation of postpartum contraception: does it decrease rapid repeat pregnancy in adolescents? *J Pediatr Adolesc Gynecol.* 2015;28(1):57–62.
 43. Han L, et al. Preventing repeat pregnancy in adolescents: is immediate postpartum insertion of the contraceptive implant cost effective? *Am J Obstet Gynecol.* 2014;211(1):24.e1–7.
 44. Teal SB, et al. Insertion characteristics of intrauterine devices in adolescents and young women: success, ancillary measures, and complications. *Am J Obstet Gynecol.* 2015;213(4):515.e1–5.
 45. Madden T, et al. Association of age and parity with intrauterine device expulsion. *Obstet Gynecol.* 2014;124(4):718–26.
 46. Garbers S, et al. Continuation of copper-containing intrauterine devices at 6 months. *Contraception.* 2013;87(1):101–6.
 47. Ravi A, et al. Intrauterine devices at six months: does patient age matter? Results from an urban family medicine federally qualified health center (FQHC) network. *J Am Board Fam Med.* 2014;27(6):822–30.
 48. Aoun J, et al. Effects of age, parity, and device type on complications and discontinuation of intrauterine devices. *Obstet Gynecol.* 2014;123(3):585–92.
 49. Behringer T, et al. Duration of use of a levonorgestrel IUS amongst nulliparous and adolescent women. *Contraception.* 2011;84(5):e5–e10.
 50. Maslyanskaya S, et al. Predictors of early discontinuation of effective contraception by teens at high risk of pregnancy. *J Pediatr Adolesc Gynecol.* 2016;29(3):269–75.
 51. Grunloh DS, et al. Characteristics associated with discontinuation of long-acting reversible contraception within the first 6 months of use. *Obstet Gynecol.* 2013;122(6):1214–21.
 52. Hoggart L, Newton VL, Dickson J. “I think it depends on the body, with mine it didn’t work”: explaining young women’s contraceptive implant removal. *Contraception.* 2013;88(5):636–40.
 53. Lunde B, et al. “Just wear dark underpants mainly”: learning from adolescents’ and young adults’ experiences with early discontinuation of the contraceptive implant. *J Pediatr Adolesc Gynecol.* 2017.
 54. Deokar AM, Jackson W, Omar HA. Menstrual bleeding patterns in adolescents using etonogestrel (ENG) implant. *Int J Adolesc Med Health.* 2011;23(1):75–7.
 55. Hoggart L, Newton VL. Young women’s experiences of side-effects from contraceptive implants: a challenge to bodily control. *Reprod Health Matters.* 2013;21(41):196–204.
 56. Gomez AM, et al. Do knowledge and attitudes regarding intrauterine devices predict interest in their use? *Womens Health Issues.* 2015;25(4):359–65.
 57. Kumar N, Brown JD. Access barriers to long-acting reversible contraceptives for adolescents. *J Adolesc Health.* 2016;59(3):248–53.
 58. Teal SB, Romer SE. Awareness of long-acting reversible contraception among teens and young adults. *J Adolesc Health.* 2013;52(4 Suppl):S35–9.
 59. Barrett M, et al. Awareness and knowledge of the intrauterine device in adolescents. *J Pediatr Adolesc Gynecol.* 2012;25(1):39–42.
 60. Potter J, Rubin SE, Sherman P. Fear of intrauterine contraception among adolescents in New York City. *Contraception.* 2014;89(5):446–50.
 61. Sundstrom B, Baker-Whitcomb A, DeMaria AL. A qualitative analysis of long-acting reversible contraception. *Matern Child Health J.* 2015;19(7):1507–14.
 62. • Kavanaugh ML, et al. Long-acting reversible contraception for adolescents and young adults: patient and provider perspectives. *J Pediatr Adolesc Gynecol.* 2013;26(2):86–95. **This study is important for every clinician to read and helps illustrate that what is important to us as providers may not be so important to patients.**
 63. Dehlendorf C, et al. A qualitative analysis of approaches to contraceptive counseling. *Perspect Sex Reprod Health.* 2014;46(4):233–40.
 64. Gavin L, et al. Providing quality family planning services: recommendations of CDC and the U.S. Office of Population Affairs. *MMWR Recomm Rep.* 2014;63(RR-04):1–54.
 65. Copen CE, Dittus PJ, and Leichter JS. Confidentiality concerns and sexual and reproductive health care among adolescents and young adults aged 15–25. *NCHS data brief,* 2016. no 266.
 66. *State Laws and Policies: An Overview of Minors’ Consent Law.* Guttmacher Institute; 2017.
 67. ACOG Committee Opinion no. 599: Committee on Adolescent Health Care: adolescent confidentiality and electronic health records. *Obstet Gynecol.* 2014;123(5):1148–50.
 68. Ford C, English A, Sigman G. Confidential health care for adolescents: position paper for the society for adolescent medicine. *J Adolesc Health.* 2004;35(2):160–7.
 69. Miguez M, et al. Reproductive health impact of a school health center. *J Adolesc Health.* 2015;56(3):338–44.
 70. Sangraula M, et al. Integrating long-acting reversible contraception services into New York City school-based health centers: quality improvement to ensure provision of youth-friendly services. *J Pediatr Adolesc Gynecol.* 2016.
 71. Daley AM. Contraceptive services in SBHCs: a community experience in creating change. *Policy Polit Nurs Pract.* 2011;12(4):208–14.
 72. Ethier KA, et al. School-based health center access, reproductive health care, and contraceptive use among sexually experienced high school students. *J Adolesc Health.* 2011;48(6):562–5.
 73. Guss CE, et al. Using the hospital as a venue for reproductive health interventions: a survey of hospitalized adolescents. *Hosp Pediatr.* 2015;5(2):67–73.
 74. Schwarz EB, et al. Computer-assisted provision of hormonal contraception in acute care settings. *Contraception.* 2013;87(2):242–50.
 75. Chemick LS, et al. Barriers to and enablers of contraceptive use among adolescent females and their interest in an emergency department based intervention. *Contraception.* 2015;91(3):217–25.
 76. Chemick LS, et al. Enhancing referral of sexually active adolescent females from the emergency department to family planning. *J Women’s Health (Larchmt).* 2015;24(4):324–8.
 77. Koyama A, Dorfman DH, Forcier MM. Long-acting reversible contraception in the pediatric emergency department: clinical implications and common challenges. *Pediatr Emerg Care.* 2015;31(4):286–92. quiz 293–5
 78. Gonsalves L, Hindin MJ. Pharmacy provision of sexual and reproductive health commodities to young people: a systematic literature review and synthesis of the evidence. *Contraception.* 2016.
 79. Manski R, Kottke M. A survey of teenagers’ attitudes toward moving oral contraceptives over the counter. *Perspect Sex Reprod Health.* 2015;47(3):123–9.

80. Upadhyya KK, et al. Over-the-counter access to oral contraceptives for adolescents. *J Adolesc Health*. 2017;60(6):634–40.
81. Hall KS, Westhoff CL, Castaño PM. The impact of an educational text message intervention on young urban women's knowledge of oral contraception. *Contraception*. 2013;87(4):449–54.
82. Hall KS, Castaño PM, Westhoff CL. The influence of oral contraceptive knowledge on oral contraceptive continuation among young women. *J Women's Health (Larchmt)*. 2014;23(7):596–601.
83. Crosby R, Salazar LF. Reduction of condom use errors from a brief, clinic-based intervention: a secondary analysis of data from a randomised, controlled trial of young black males. *Sex Transm Infect*. 2015;91(2):111–5.
84. Williams RL, Fortenberry JD. Update on adolescent condom use. *Curr Opin Obstet Gynecol*. 2011;23(5):350–4.
85. Brown JL, et al. Multiple method contraception use among African American adolescents in four US cities. *Infect Dis Obstet Gynecol*. 2011;2011:765917.
86. Higgins JA, et al. Dual method use at last sexual encounter: a nationally representative, episode-level analysis of US men and women. *Contraception*. 2014;90(4):399–406.
87. Hood JE, et al. Dual contraceptive use among adolescents and young adults: correlates and implications for condom use and sexually transmitted infection outcomes. *J Fam Plann Reprod Health Care*. 2014;40(3):200–7.
88. Kottke M, et al. Use of dual methods for protection from unintended pregnancy and sexually transmitted diseases in adolescent African American women. *J Pediatr Adolesc Gynecol*. 2015;28(6):543–8.
89. Williams RL, Fortenberry JD. Dual use of long-acting reversible contraceptives and condoms among adolescents. *J Adolesc Health*. 2013;52(4 Suppl):S29–34.