Original Study

Postabortion and Postpartum Intrauterine Device Provision for Adolescents and Young Adults

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A B S T R A C T

Adolescents are at high risk for unintended pregnancy and rapid repeat pregnancy, both of which can be associated with negative health and social outcomes. Intrauterine device (IUD) use has been shown to decrease unintended pregnancy and rapid repeat pregnancy. Evidence supports IUD insertion postabortion and postpartum as safe and practical for nearly all women, including adolescent and young adult women. Providers of adolescent gynecology can play an important role in decreasing repeat and unintended pregnancy among adolescents by increasing access to IUDs, reducing barriers to care, and providing IUDs immediately postabortion and postpartum.
Key Words: Adolescents, Contraception, Intrauterine contraception, Postabortion, Postpartum

Introduction

Adolescent and young adult pregnancies are often unintended and are frequently tied to complex social issues.[1,2] They are often of public health concern because they can impose emotional and socioeconomic burdens on women, their families, and their communities.[2] The US pregnancy rate among adolescent and young adult women has recently been declining. Between 2007 and 2013, the pregnancy rates among women aged 15-19 and 20-24 years decreased 38% and 25%, respectively.[3] In 2013 the pregnancy rate for 15- to 19-year-old teens was at its lowest point in at least 80 years at 43 per 1000 women.[3] The proportion of those pregnancies ending in abortion was 29%, a decline from 46% in 1985.[3] This trend in adolescent pregnancy rates could, in part, be attributable to increased contraceptive use among adolescent and young adult women, as well as increased use of highly effective long-acting reversible contraceptive (LARC) methods specifically, including intrauterine devices (IUDs) and contraceptive implants.[4–6]

Although pregnancy rates among adolescent and young adult women have declined in recent years, this population of women continues to be at increased risk for unintended pregnancy compared with adult women. From 2006 to 2010, the highest rates of unintended pregnancy in the United States were among adolescents.[1] The National Health Statistics Report indicated that 77% of births to women aged 15-19 years were unintended, compared with 50% among women aged 20-24 years, and 25% among women aged 25-44 years.[1] Among available state-level data in 2013, unintended pregnancy rates among women younger than 20 years ranged from 16 to 41 per 1000 women and the percent of pregnancies that were unintended ranged from 56% to 79%.[3] Additionally, unintended pregnancy disproportionately affects black women, unmarried women, and women with less income and education, disparities that are all further exacerbated among adolescents.[1,7]

Adolescents are also at risk for rapid repeat pregnancy and related adverse outcomes. Rapid repeat pregnancy is defined as a pregnancy within 2 years of a previous pregnancy, and repeat teen birth is defined as having 2 or more pregnancies resulting in a live birth before age 20 years.[8,9] Adolescents who experience a repeat birth are more likely to exhibit parenting stress and neglectful behavior, and children of repeat teen pregnancy face increased risk of prematurity and low birth weight.[10,11] Repeat teen births can also result in reduced educational achievement for the mother and her children, reduced maternal economic self-sufficiency, and increased public costs associated with long-term poverty.[8,12] In 2010, approximately 20% of births to women aged 15-19 years were repeat births.[9]

Because rapid repeat pregnancies in the first 18 months are largely unintended, interventions to reduce rapid repeat pregnancy and unintended pregnancy in the adolescent population are essential.[13] The American College of Obstetricians and Gynecologists (ACOG) and the American Academy of Family Physicians support immediate postabortion and postpartum LARC insertion as a best practice because of its role in preventing unintended and rapid repeat pregnancy.[14,15] After abortion and childbirth, women are often motivated to initiate contraception. These periods represent a crucial time when women are already interfacing with the health care system, and barriers to contraceptive access are therefore reduced. Evidence has shown that when access and cost barriers are removed and women

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are provided with comprehensive, unbiased counseling, many prefer LARC methods, which have shown efficacy in preventing unintended and repeat pregnancies.[16,17] Largely through an increase in LARC access and use, the Contraceptive CHOICE Project showed a reduction in repeat abortions and in teen pregnancy, birth, and abortion compared with national rates.[16] The Colorado Family Planning Initiative led to a decrease in teen pregnancy by 26% through increasing health care provider LARC education and decreasing out of pocket costs for LARC devices statewide.[18] It is therefore clear that providers of adolescent obstetric and gynecologic care can play an important role in helping to decrease unintended and rapid repeat pregnancies in this age group by offering IUDs at these critical time points. In this review, we provide an overview of the use of postabortion and postpartum IUDs among adolescent and young adult women.

IUDs and Adolescents

IUDs, including the levonorgestrel intrauterine system (LNG-IUS) and the copper IUD (Cu-IUD), are safe and effective for nulliparous and adolescent women, and are recommended as first-line contraceptive options for adolescents by the American Academy of Pediatrics and ACOG.[2,14,19] Although there has historically been a concern for an increased risk of infection and future infertility from IUD use in this population, research has shown that adolescents are not at increased risk of these morbidities.[20,21] Despite clear evidence regarding the safety of IUDs, a large portion of obstetrician-gynecologists still do not offer IUDs to all appropriate candidates. In 2014, Luchowski et al published the results of a survey questionnaire of ACOG fellows and showed that almost all (96%) of the respondents reported providing IUDs in general, but only 67% of them considered nulliparous women appropriate candidates, and 43% considered adolescents appropriate candidates.[22] In addition, only 7% reported providing postpartum IUDs and 11% reported providing immediate postabortion or postmiscarriage IUDs. Providers who received ongoing education on IUDs were more likely to place postabortion or postmiscarriage IUDs (16.2% vs 8.9%; $P < .001$), highlighting the importance of continuing medical education. In a 2013 survey that assessed pediatrician's current practice patterns and perspectives on IUD use in adolescents, a large proportion of pediatricians considered abstinence their favored method of contraception for adolescents, and a small proportion (18%) stated that they discussed IUDs as an option with their adolescent patients.[23] Pediatricians were more likely to consider an IUD a safe option for their patient if the patient had a history of a vaginal delivery or abortion (44% and 34%, respectively). Female and younger pediatricians were more likely to discuss IUDs as an option in general. In a recent survey of family medicine physicians that assessed self-estimated adequacy of training to insert immediate postpartum IUDs, significantly fewer physicians felt adequately trained to insert an immediate postpartum IUD compared with a contraceptive implant (36.4% vs 58.7%; $P < .001$).[24] These studies highlight the importance of adequate training of providers who can profoundly affect the expansion of LARC services to adolescent and young adult women.

Table 1
US Medical Eligibility Criteria for Contraceptive Use

Condition	Cu-IUD	LNG-IUS	Implant
Age from menarche to younger than 20 years	2	2	1
Parity			
Nulliparous	2	2	1
Parous	1	1	1
Postpartum (including cesarean delivery)			
Less than 10 minutes after delivery of placenta (breast feeding)	1	2	–
Less than 10 minutes after delivery of placenta (not breast feeding)	1	1	–
Ten minutes after delivery of placenta to less than 4 weeks after delivery (breastfeeding or not breastfeeding)	2	2	–
Four weeks or more after delivery (breastfeeding or not breastfeeding)	1	1	–
Postpartum sepsis	4	4	–
Postpartum			
Not breastfeeding (any time postpartum)	–	–	1
Breastfeeding, less than 30 days postpartum	–	–	2
Breastfeeding, 30 days or more postpartum	–	–	1
Postabortion			
First trimester (including immediately after spontaneous or induced abortion)*	1	1	1
Second trimester (including immediately after spontaneous or induced abortion)*	2	2	1
Immediately after septic abortion	4	4	1

Cu-IUD, copper intrauterine device; LNG-IUS, levonorgestrel intrauterine system.
Data are presented as categories, where 1 represents a condition for which there is no restriction for the use of the contraceptive method; 2 represents a condition for which the advantages of using the method generally outweigh the theoretical or proven risks; 3 represents a condition for which the theoretical or proven risks usually outweigh the advantages of using the method; and 4 represents a condition that represents an unacceptable health risk if the contraceptive method is used.
* IUDs can be inserted immediately after spontaneous or induced abortion.
Modified from Curtis et al[27] and from ACOG committee opinion no. 735.[2]

Postabortion IUDs

IUD placement after an abortion is a common and acceptable procedure, although data pertaining specifically to this practice in the adolescent population are somewhat limited. Extensive data show that immediate IUD insertion after first and second trimester abortion is safe and practical for many reasons including knowing that the patient is not pregnant, pain of insertion might be less, and motivation to use contraception might be high.[25] Rates of abortion complications including infection, uterine perforation, retained products of conception, and need for reaspiration, are not significantly different when IUD placement occurs immediately after the procedure.[26] The World Health Organization Medical Eligibility Criteria and US Centers for Disease Control and Prevention (CDC) Medical Eligibility Criteria for Contraceptive Use list IUD insertion immediately postabortion as a category 1 (no restriction) or category 2 (advantages generally outweigh the risks; Table 1).[27,28]

As a population that faces challenges in accessing safe abortion services, provision of IUDs for adolescents at the time of abortion can have significant beneficial effects.[29] Immediate postabortion IUD placement has the potential to significantly reduce repeat pregnancy and abortions.[30] In a multisite retrospective cohort study that evaluated the effect of immediate postabortion IUD insertion on repeat abortion, patients who received an IUD had a lower rate of

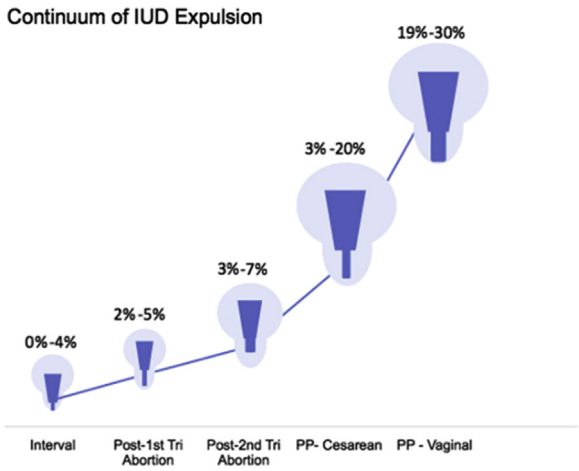

Fig. 1. Continuum of intrauterine device (IUD) expulsion rates for IUDs placed at various time points related to uterine size and cervical dilation that included interval timing (Interval), after first-trimester abortion (Post-1st Tri Abortion), after second-trimester abortion (Post-2nd Tri Abortion), after cesarean delivery (PP- Cesarean), and after vaginal delivery (PP - Vaginal). Adapted from Goldthwaite et al.[35]

repeat abortions than those who chose another non-IUD contraceptive method on the day of their abortion, with an associated adjusted hazard ratio of 0.37 for repeat abortions compared with controls.[30] Immediate postabortion IUD use has been shown to have high rates of continuation and satisfaction.[31]

Immediate postabortion IUD placement reduces the need for women to return to medical care for delayed IUD insertion and mitigates this potential barrier for contraception access. In study settings, approximately 40% of patients scheduled to receive delayed placement of an IUD after an abortion did not return for the scheduled procedure.[32] Because of the low rate of return for interval IUD insertion, immediate placement might be preferable. In a retrospective review of women who requested postabortion IUD placement, 96% of women in the immediate placement group received an IUD vs 28% of women in the interval group ($P < .0001$).[33] Of those who did not receive an interval IUD, failure to return was the most common reason (69%). Planned delayed insertion of an IUD after an abortion coupled with low rates of follow-up result in missed opportunities for effective contraception.[31] An evidence-based decision model estimated that moving from delayed IUD insertion to insertion immediately postabortion would prevent more than 70,000 unintended pregnancies annually in the United States.[34]

IUD expulsion rates are higher when placed immediately postabortion compared with interval insertions. Risk of expulsion after first- and second-trimester surgical abortion have been reported between 0.8%-5% and 3%-7%, respectively, compared with 0.7%-2.7% for interval insertions (Fig. 1).[33,36-47] However, at 6 months postabortion, IUD use was reported as consistently higher when the IUD was inserted immediately postprocedure compared with interval insertion, because a large proportion of women who plan for interval insertion fail to follow-up for this second procedure, as described previously.[25]

There is limited literature on the effect of postabortion IUDs on repeat births and abortions specifically among adolescents. Rose and Garrett conducted a retrospective review of adolescent and nulliparous women in New Zealand who received a LARC method immediately postabortion between 2007 and 2013.[48] Although there was an overall increase in postabortion LARC use from 2007 to 2013 (7.9% to 42.7% for adolescents and 8.8% to 36.9% for nulliparous women), uptake in these groups was still lower than that of older and parous women. Results from this study showed a nearly 50% decline in number of abortions among adolescents and nulliparous women during the 7-year period; the number of abortions among women aged younger than 20 years decreased from 4277 to 2144. This finding also correlated with a fivefold increase of LARC use among adolescents and a fourfold increase in LARC use among nulliparous women during this same time period.[48] A retrospective review in 2015 of women who received postabortion contraception at a New Zealand public hospital showed that the initiation of use of the levonorgestrel implant immediately postabortion was associated with a 74% reduction in repeat abortion over the next 4 years compared with use of short-acting methods.[49] At 12 and 24 months, subsequent abortion rates were least frequent among implant and IUD users, with implants being the most popular among adolescents but IUD use in this population might have been limited because of the significant cost of IUDs in New Zealand.[49] Overall, results from both of these studies suggest a favorable shift in the provision and uptake of postabortion LARC methods to adolescent women, in line with international recommendations, and a decrease in number of abortions among adolescents coinciding with increased uptake of LARC methods.[2,14,28]

Postpartum IUDs

The immediate placement of IUDs postpartum is a safe and effective practice. United States and international recommendations from the World Health Organization, CDC, American College of Obstetricians and Gynecologists, and the Society of Family Planning support offering postpartum IUD services for all women, including adolescent and young adult women.[2,14,27,28,50,51] The only absolute contraindication to immediate postpartum IUD insertion is puerperal sepsis, and this is generally extended to include any peripartum uterine infection, such as chorioamnionitis and endometritis.[27] The insertion of an immediate postpartum IUD is otherwise considered to be low risk, regardless of insertion timing postpartum, type of IUD (LNG-IUS or Cu-IUD), breastfeeding status, or type of delivery (vaginal or cesarean; Table 1).[27]

When an IUD is not available immediately postpartum, it is generally offered at the standard 6-week postpartum visit, which results in missed opportunities to prevent rapid repeat pregnancy. Although exclusive breastfeeding frequently suppresses ovulation postpartum, non-breastfeeding women generally ovulate within 4 weeks of their delivery.[52] Adolescent and young adult women are less likely than their adult counterparts to breastfeed postpartum, putting them at increased risk of early ovulation.[53] In addition, many women initiate sexual activity before 6 weeks postpartum.[54] Kelly et al studied the

resumption of sexual activity postpartum specifically among a cohort of women aged 13-21 years and reported that 24% had resumed sexual activity by 6 weeks postpartum.[55] Working to help adolescent and young adult women meet their contraceptive needs immediately postpartum is therefore of critical importance.

The ideal time to counsel women on their contraceptive options is during their antenatal care, with a contraceptive plan made in advance of delivery. This is particularly important for adolescent patients because they view their doctors and their prenatal clinic as their most accurate sources of contraceptive information and prefer in-person contraceptive counseling over written materials.[56] Adolescent-focused prenatal care teams that used motivational interviewing to counsel on contraceptive options reported significantly higher rates of IUD use among adolescents compared with those who received standard care (27.7% vs 12.7%; $P < .01$).[57] These studies highlight the importance of provider involvement in effective counseling and appropriately timed counseling to improve meeting postpartum contraceptive needs for adolescent women.

There are many similarities and parallels between postpartum and postabortion IUD insertion: as discussed previously, after an abortion or a delivery, women are known not to be pregnant, are already interfacing with the health care system, and are often motivated to use contraception. During the postpartum period, there is no increase in adverse outcomes for IUDs placed immediately compared with those placed at a delayed interval.[51,58,59] Expulsion, however, appears to be consistently higher when the IUD is placed immediately postpartum compared with an interval time point. Although rates vary considerably across studies, expulsion does seem to vary according to delivery type, timing of insertion, and IUD type, with the highest risk after a vaginal delivery, and specifically with the use of the LNG-IUS (as high as 24%-38%).[38,39,60] This is not surprising, because there is physiologic plausibility that the larger the uterus and the more open the cervix, the higher the risk of IUD expulsion, as shown in Figure 1, an illustration of IUD expulsion rates at various times, relative to uterine size and cervical dilation. However, expulsion should be considered in the context of method continuation. Women face challenges and barriers to obtaining IUDs in the delayed postpartum setting, and many women ultimately never obtain their desired IUD. For this reason, despite expulsion risk, IUD continuation at 6 months postpartum is consistently higher for women who receive an immediate postpartum IUD compared with those who had planned for interval insertion. In a meta-analysis of women who were enrolled in postpartum IUD studies and randomized to receive their IUD immediately or at a delayed interval, IUD expulsion at 6 months was more likely for those who received an immediate postpartum IUD (17% vs 3%; odds ratio, 4.89; 95% confidence interval, 1.47-16.32), but IUD use at 6 months was also more likely among those in the immediate group (81% vs 67%; odds ratio, 2.04; 95% confidence interval, 1.01-4.09).[58] It is impossible for a woman to continue to use an IUD that she was never able to obtain.[61]

There are very few studies that have investigated the use of immediate postpartum IUDs specifically among adolescent women because most published studies excluded the enrollment of women younger than 18 years of age. A pilot feasibility study in Hawaii with a focus on adolescent postpartum LNG-IUS use was closed early because of slow enrollment.[62] In Colorado, 13- to 22-year-old women enrolled in the Colorado Adolescent Maternity Program were offered the option of an immediate postpartum IUD or implant insertion before hospital discharge.[63] Over a 2-year period, 244 of 479 women who delivered in the program chose this service, all of whom agreed to follow-up as part of a research cohort. Of the 244 women, 82 chose and received an immediate postpartum IUD (74 LNG-IUS and 8 Cu-IUD) and 162 chose the implant before hospital discharge. Continuation of both methods was high at 12 months: 61% of those who initially chose an IUD and 86% of those who chose the implant. The patient-requested discontinuation rate within the first year of placement was 14% in each group. Among women who chose an IUD, 25% experienced an expulsion, which is consistent with expulsion rates for the LNG-IUS in studies that excluded adolescents.[38,39] The pregnancy rates at 12 months postpartum were lower than previously reported in this age group: 7.6% for those in the IUD group and 1.5% for those in the implant group.[63] Most pregnancies occurred among women who discontinued their chosen device and then did not start an alternative method of contraception, and no pregnancies resulted from device failure.

Conclusion

Unintended and repeat pregnancies among adolescent and young adult women are public health concerns for which IUDs are known to be effective interventions. The CDC and ACOG support the use of IUDs for adolescents as safe, effective contraceptive methods, regardless of age, parity, or timing after a pregnancy episode (Table 1).[2,14,27] Immediate access to highly effective contraception during the postabortion and postpartum period is safe, convenient, and associated with high continuation rates. Expanding access to and increasing provision of immediate postabortion and postpartum IUDs among adolescents might decrease unintended and rapid repeat pregnancy in this high-risk population. It is important to highlight that for women younger than the age of 18 years, laws vary according to US state with regard to the minor's ability to consent for reproductive health care, including contraceptive services.[64] Those who provide care must be familiar with local laws. Similarly, there is variation in insurance coverage of IUDs in the immediate postabortion and postpartum periods, with significant regional and public/private insurance variation patterns in coverage. Public health efforts should focus on ensuring that all women, especially those at increased risk of unintended pregnancy, have equitable access to the most effective methods of contraception, despite their age or insurance status. Further research specifically in the adolescent-aged population is needed to explore reasons for and barriers against differential uptake of various LARC methods after pregnancy, complications and outcomes of use, and factors

contributing to discontinuation. When barriers to access are removed and appropriate candidates are offered various LARC methods, the opportunity to reduce repeat and unintended adolescent pregnancy could have a large beneficial effect for young women's health and their communities. Efforts should be made to better implement adequate counseling and provision of IUDs to adolescents and young adult women in the postabortion and postpartum time periods. It is important to acknowledge this as a shared responsibility among all providers of adolescent obstetric and gynecologic care.

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