

A Review of Long-Acting Reversible Contraception Methods and Barriers to Their Use

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ABSTRACT

Unplanned pregnancies are a serious health concern in Wisconsin. Increasing access to contraception is a proven method to reduce unplanned pregnancies while giving patients greater agency. Long-acting reversible contraception (LARC) methods, such as subdermal implants and intrauterine devices (IUD), are among the most effective contraception methods available and have high patient satisfaction. However, relatively few Wisconsin patients use these methods. Lack of provider skill in inserting and counseling about LARCs, inability to perform same-day LARC insertion, and absent hospital protocols for immediate postpartum insertion represent barriers to LARC access. Centralized efforts are required to remove these barriers so that all patients in Wisconsin can access highly effective contraception.

BACKGROUND

In 2011, 37% of all Wisconsin pregnancies were unplanned.¹ Patients with unplanned pregnancies are more likely to delay prenatal care, experience maternal depression, and face violence during pregnancy.² These pregnancies are more likely to end in abortion, while infants born are more likely to face health problems.² An unplanned pregnancy can reduce parents' educational attainment and earning potential.² Unplanned pregnancies also carry financial implications for families, hospital systems, and state entitlement programs.

Increasing access to all family planning methods is an effective and cost-efficient strategy to decrease unplanned pregnancies in Wisconsin. Long-acting reversible contraception (LARC) methods are among the most effective contraception methods. They prevent pregnancy for 3 to 10 years, independent of user action. In studies where women are provided no-cost contraception, 20% to 42% of women

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choose LARCs.^{3,4} (Note that no studies have thus far investigated LARC use among transgender men or nonbinary patients.) Despite the data, only 4.4% to 5.7% of Wisconsin women enrolled in Medicaid currently use a LARC.¹ This low uptake is linked to several barriers preventing patients from receiving their contraception of choice.

What Are LARCs?

LARC is a term used to describe contraceptive methods that are reversible but do not require any action by the user to be effective. There are 2 types of LARC available in the United States: etonogestrel single rod subdermal implants and intrauterine devices (IUD). There are 5 different IUDs available in the United States, 4 with progestin and 1 copper IUD.⁵ (See Table) Both the implant and the IUDs require a visit with a trained clinician. Clinicians are trained to insert IUDs during residency training but have to complete an FDA-approved, industry-sponsored program in order to be certified to insert the contraceptive implant. Nurse practitioners and physician assistants also may be trained by their colleagues to insert LARC.

How Do LARCs Work?

The etonogestrel contraceptive implant (marketed as Nexplanon) releases a low level of progestin during the 3 years it is in place. This low level of progestin leads to thickened cervical mucus and suppression of ovulation.⁵ The typical failure rate is 0.05%, which makes it one of the most effective contraceptive methods available. The implant is inserted in the upper, inner aspect of the nondominant arm with a procedure that takes less than 5 minutes. After insertion, the main side effect is changes in menstrual bleeding patterns. Patients may experience a variety of different bleeding patterns ranging from frequent spotting to amenorrhea. This low-dose progestin method does not confer many of the traditional side effects seen with other progestin-only methods such as weight gain and headache.⁵

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There are 5 different IUDs available in the United States (Table). The Copper T-380 IUD is a nonhormonal method of contraception. The copper IUD's main mechanism of action is to prevent fertilization by impacting sperm migration and viability. It does not interfere with existing pregnancies.⁵ It has a failure rate of 0.08%, which is comparable to the annual failure rate of a tubal ligation. The most common side effect of the copper IUD is increased menstrual bleeding and pelvic pain. There are no hormonal side effects. It can also be used as emergency contraception (preventing pregnancy) if inserted up to 5 days after unprotected intercourse.

There are 4 different hormonal IUDs, each with levonorgestrel (LNG). These IUDs prevent pregnancy by causing thickened cervical mucus (a progestin effect).⁵ A secondary effect of the LNG-IUDs is that the progestin induces endometrial thinning and atrophy, which then causes decreased menstrual bleeding in many patients, usually after a period of irregular bleeding.⁵ The LNG-IUDs do not interrupt an existing pregnancy.

New guidelines for IUD insertion provide broader recommendations. IUDs are appropriate for teenagers, patients who have not had children, and patients who have had a pelvic infection in the past.^{5,6} Same day IUD insertions are acceptable if a reasonable exclusion of pregnancy is performed.^{5,6}

DISCUSSION

Clinical Use of LARC

Both IUDs and the contraceptive implant should be routinely offered as contraceptive options to adolescent and nulliparous women. There is no evidence showing an increased risk of complications when using IUDs in this population.⁵ No studies have demonstrated an increased risk of pelvic inflammatory disease or infertility in women using an IUD. Women who are at high risk for sexually transmitted infections can be tested for infection at the time of placement of the IUD and treated if the results are positive. As long as pregnancy can be reasonably excluded, an IUD or implant can be placed at any time during the menstrual cycle.⁵ Women should be counseled to use backup contraception for the first 7 days after placement of implant or LNG-IUD. A copper IUD is effective immediately and no backup contraception is required.⁶

Barriers

Provider Education—Provider knowledge gaps about LARCs directly affect provision. Specialty matters, as 88% of providers working in obstetrics and gynecology nationwide report providing LARCs, compared with only 24% of those working in internal medicine or pediatrics.⁷ Furthermore, 44.2% of family medicine practices report safety misperceptions surrounding LARCs, compared to only 14.7% of gynecology and obstetrics providers.⁷ Providers who receive continuing education about LARCs have fewer safety misperceptions and are more likely to include LARCs in their practices.⁷

Some providers may believe that there are limitations in appropriateness of LARC usage. However, most expert panels agree that

Table. Types of Intrauterine Devices (IUD) Available in the United States⁵

IUD Name	Type of IUD	Brand Name	Comments
Copper T380A	Nonhormonal	Paraguard	FDA-approved for up to 10 years Effective emergency contraception
LNG-20 IUD	Hormonal	Mirena	Contains a total of 52mg of LNG Releases 20 mcg/day of LNG FDA-approved for up to 5 years
LNG-18.6	Hormonal	Liletta	Contains a total of 52mg of LNG Releases 18.6mcg/day of LNG FDA-approved for up to 4 years
LNG-19.5	Hormonal	Kyleena	Contains a total of 19.5 mg of LNG Releases 17.5 mcg/day of LNG FDA-approved for up to 5 years
LNG-13.5	Hormonal	Skylla	Contains a total of 13.5mg of LNG Releases 14 mcg/day of LNG FDA-approved for up to 3 years Smaller insertion device than other LNG-IUDs

Abbreviation: LNG, levonorgestrel.

LARCs are suitable for nulliparous patients, teenagers, and patients with a history of ectopic pregnancy, sexually transmitted infections, abortion, depression, or obesity.²

Same-Day Insertion—Attending a health appointment requires patients to access transportation, find childcare, leave work, and pay a copayment. Allowing same-day LARC insertion eliminates the need for patients to make another costly appointment. However, several barriers prohibit same-day LARC insertion.

Stocking LARC devices is an oft-cited issue. When purchased from a wholesaler, LARCs cost \$700 to \$850 each.² Due to the costs, clinics may wait for patients to request a device before buying one from a pharmacy, ensuring reimbursement. This means the clinic will not have the device onsite when requested.

Lack of provider skill and education may also be a barrier. Providers who lack training in LARC insertion must refer patients to other providers, requiring their patients to schedule an additional appointment.

Lastly, some providers find that same-day insertion is not possible due to the time needed to conduct a pregnancy test. According to “Quick Start” insertion guidelines, there are many instances where a pregnancy test is not necessary, such as when a patient's last menstrual period was less than 7 days ago. In addition, a progestin IUD or implant can be quick-started if a patient has not had unprotected sex since their last menstrual period.⁸

Utilizing Existing Insurance Options—LARCs inserted immediately postpartum (IPP) can be safe and well-tolerated. Research shows that IPP LARC insertion has a high continuation rate,⁹ improves optimal interpregnancy intervals,¹⁰ and is cost-efficient.^{11,12} However, due to previous “bundling” of Medicaid coverage for IPP LARCs with birth costs, hospitals were disincentivized to provide this service. Beginning January 2017, provision of LARCs IPP has been “unbundled” in

Wisconsin, allowing hospitals to bill Medicaid separately for the procedure and receive reimbursement for the costly devices.

Despite these changes, obstacles to IPP LARC insertion remain. For an IUD to be inserted immediately after placental delivery, the device must be readily available where the patient is giving birth. However, many Wisconsin hospitals have yet to adapt their stocking procedures, order sets, and pharmacy formularies to allow for IPP insertion. Lack of provider training in performing IUD insertion postpartum is an additional barrier nationwide.¹³

An underutilized insurance option that Wisconsin offers is the Family Planning Only Services Program. This program provides low-income patients who are at least 14 years old with no cost family planning-related services (such as LARC insertion). These services and their notices are confidential, minors can apply for them on their own, and patients can access them even if they already have health insurance.¹⁴

Ideological Concerns

Remembering past reproductive injustices is the first step to avoiding them in the future. Providers must know about the historical legacy of sterilization and forced contraceptive use against patients living in poverty, communities of color, and those with disabilities or mental illnesses.¹⁵ Researchers and advocates encourage thoughtfulness when promoting LARC use. LARC promotion may lead to coercion and targeting of certain patients if a social justice framework is not in place.¹⁵

Some people may have personal reservations towards LARC use. The 2016 “Future of the Family Commission” of the Wisconsin Department of Children and Families acknowledges that LARC use may “carry moral considerations that are unacceptable to segments of the population”.¹⁶ While LARCs do not interfere with an implanted embryo, some patients and providers may oppose their use due to religious or personal beliefs.

Special Issues in Rural Patients—Patients living in rural Wisconsin may have different challenges than patients living in urban areas. Some research suggests that women of reproductive age who live in rural areas have less access to contraceptive care.¹⁷ This access is likely related to shortages of women’s health providers in rural areas as well as clinic-based barriers. One survey of 558 family planning clinics in 16 Midwestern and Great Plains states found that clinics in rural areas had less access (shorter hours, no evening or weekend hours), fewer providers trained in IUDs, and less administration of hormonal contraception.¹⁸

Potential Benefits

Removing barriers to LARC use gives patients and providers increased freedom when making decisions about family planning. In fact, when clinicians receive training in LARC insertion, billing policies, and counseling, patients report greater autonomy in choosing contraception.¹⁹ Women also report high satisfaction with LARCs in comparison to short-acting methods.⁴

Programs in St. Louis and Colorado show that when barriers to

LARC provision are removed, the unplanned pregnancy rate falls.^{3,4} The Colorado Family Planning Initiative began with a private donor’s investment in the state health department’s family planning program. Health providers received training in LARCs, family planning clinics received financial support, and low-income patients were able to receive their choice of contraception for little to no cost. Since the initiative began, births to women without a high school education fell 38%.³ For young patients, fewer unplanned pregnancies means greater education and career stability before childbirth.³ Rapid repeat births declined by 12% among all women in the state. Fewer unplanned pregnancies increase the health of patients and their children, allowing for healthy birth spacing while decreasing low birth weight and high-risk births.³ Lastly, abortion rates were reduced by 49.7% among women in Colorado aged 15 to 24 between 2009 and 2014.³

In St. Louis, the Contraceptive CHOICE project enrolled over 10,000 women to participate in a study where they would receive the contraception method of their choice. When counseled, over 75% of women chose a LARC method.⁴ LARC-using patients in St. Louis were 20 times less likely to get pregnant than those using short-acting methods.⁴

Finally, increasing LARC access is cost-effective for patients, hospital systems, and entitlement programs. Once used for 2.1 years, LARCs are cost-saving for patients in comparison to short-acting methods.²⁰ Models have shown that providing LARCs IPP is cost-saving for health care systems, saving \$1,263 per patient in one estimate.^{8,9} The Colorado Family Planning Initiative avoided millions of dollars in costs to state entitlement programs such as Medicaid, Temporary Assistance for Needy Families, Supplemental Nutrition Assistance Program, and the Special Supplemental Nutrition Program for Women, Infants, and Children between 2010 and 2014.³

Current Efforts in Wisconsin and Beyond

A handful of programs in Wisconsin increase patient access to LARCs. The Ryan Residency Training Program at Meriter Hospital in Madison provides free IPP LARCs to low-income women. The Collaborative Improvement and Innovative Network (CoIIN) to Reduce Infant Mortality has partners throughout Wisconsin working to improve the reproductive health content of postpartum visits and adolescent well checks. Wisconsin Contraceptive Access Network (CAN) is a fledgling initiative seeking to eliminate barriers to contraception via health care quality improvement, stakeholder engagement, and policy advocacy.

These efforts are important, but they are not sufficient to eliminate barriers to LARC access in Wisconsin. Other states have seen success with more centralized programs, such as the Colorado Family Planning Initiative described above. One new example of such a program is Delaware, where the state has reallocated funding from its public health budget (alongside significant private funding) to partner with a nonprofit called Upstream USA. The program will train health care providers and billing staff so that all patients in major health care centers will be asked about their pregnancy plans and provided no-

low-cost birth control if desired.²¹ If the initiative leads to a decrease in Medicaid spending and unplanned pregnancy rates, it may prove viable for application in other states such as Wisconsin.

There are also nationwide efforts to improve LARC access, such as the ASTHO Increasing Access to Contraception Learning Community. This initiative teaches strategies and best practices so states can implement policies and programs that increase access to all contraceptive methods. Twenty-seven states, including Iowa and Illinois, are partnered with ASTHO; Wisconsin currently is not one of them.²²

CONCLUSION

Improving access to LARCs is a cost-effective way to increase patient satisfaction and agency while reducing unplanned pregnancies. With the new low-cost IUD recently on the market (brand name Liletta), clinics may be able to keep more IUDs in stock in the future, making same-day insertion more feasible. Increasing provider education so that providers know which patients can be provided with LARCs, how to insert LARCs, and when contraception can be given via “Quick Start” will decrease the need for patients to schedule additional appointments. Adapting stocking procedures, order sets, and pharmacy formularies to match current Medicaid policies surrounding IPP LARC insurance will allow more patients to receive LARCs immediately postpartum. Improving health care staff awareness of the Family Planning Only Services Program can increase the program’s utilization so that more Wisconsin patients have access to insurance providing no-cost LARCs. Lastly, health care providers can advocate for Wisconsin’s participation in more centralized efforts to improve LARC access, looking to programs such as the Colorado Family Planning Initiative, Delaware CAN, and the ASTHO Increasing Access to Contraception Learning Community as examples. Through knowledge, awareness, and advocacy, more Wisconsin patients will be able to access their contraception of choice.

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REFERENCES

1. Gibson C. Council of State and Territorial Epidemiologists Annual Conference 2016. In: *Characteristics of Medicaid-Insured Women Adopting Most or Moderately Effective Contraception Methods*. Anchorage, AL: Wisconsin Department of Health Services.
2. Benefits and strategies for long-acting reversible contraceptive promotion in Wisconsin. Robert M. La Follette School of Public Affairs, University of Wisconsin-Madison. <https://www.lafollette.wisc.edu/research/publications/benefits-of-and-strategies-for-long-acting-reversible-contraceptive-promotion-in-wisconsin>. Published 2016. Accessed September 29, 2018.
3. Colorado Department of Public Health and Environment. Taking the unintended out of pregnancy: Colorado's success with long-acting reversible contraception. https://www.colorado.gov/pacific/sites/default/files/PSD_TitleX3_CFPJ-Report.pdf. Published January 2017. Accessed September 29, 2018.

4. McNicholas C, Madden T, Secura G, Peipert JF. The contraceptive CHOICE project round up. *Clin Obstet Gynecol*. 2014;57(4):635-643. doi:10.1097/grf.0000000000000070.
5. ACOG Practice Bulletin Number 186: Long-acting reversible contraception: implants and intrauterine devices. *Obstet Gynecol*. 2017;130(5):e251-e269. doi:10.1097/AOG.0000000000002400.
6. Hardeman J, Weiss BD. Intrauterine devices: an update. *Am Fam Physician*. 2014;89(6):445-450.
7. Curtis KM, Jatlaoui TC, Tepper NK, et al. U.S. Selected Practice Recommendations for Contraceptive Use, 2016. *MMWR Recomm Rep*. 2016;65(4):1–66. doi:http://dx.doi.org/10.15585/mmwr.rr6504a1.
8. Hopkins B. Barriers to health care providers’ provision of long-acting reversible contraception to adolescent and nulliparous young women. *Nurs Womens Health*. 2017;21(2):122-128. doi:10.1016/j.nwh.2017.02.007.
9. Crockett AH, Pickell LB, Heberlein EC, Billings DL, Mills B. Six- and twelve-month documented removal rates among women electing postpartum inpatient compared to delayed or interval contraceptive implant insertions after Medicaid payment reform. *Obstet Gynecol Surv*. 2017;72(4):233-234. doi:10.1097/01.ogx.0000514230.65860.26.
10. Thiel de Bocanegra H, Chang R, Howell M, Darney P. Interpregnancy intervals: impact of postpartum contraceptive effectiveness and coverage. *Am J Obstet Gynecol*. 2014;210(4):311.e1-311.e8. doi:10.1016/j.ajog.2013.12.020.
11. Washington CI, Jamshidi R, Thung SF, Nayeri UA, Caughey AB, Werner EF. Timing of postpartum intrauterine device placement: a cost-effectiveness analysis. *Fertil Steril*. 2015;103(1):131-137. doi:10.1016/j.fertnstert.2014.09.032.
12. Duffy J, Xu X, Garipey A. Cost-effectiveness of immediate versus delayed postpartum etonestrel implant insertion. *Contraception*. 2013;88(3):453. doi:10.1016/j.contraception.2013.05.089.
13. Association of State and Territorial Health Officials. Long acting reversible contraception (LARC) learning community launch report. <http://www.astho.org/Programs/Prevention/Maternal-and-Child-Health/LARC-Learning-Community-Launch-Report/>. Published August 19, 2014. Accessed September 29, 2018.
14. Family Planning Only Services. Wisconsin Department of Health Services. <https://www.dhs.wisconsin.gov/fpos/index.htm>. Published February 1, 2017. Accessed July 12, 2017.
15. Higgins JA. Celebration meets caution: LARC’s boons, potential busts, and the benefits of a reproductive justice approach. *Contraception*. 2014;89(4):237-241. doi:10.1016/j.contraception.2014.01.027.
16. Anderson E. Future of the Family Commission: final report and recommendations. Future of the Family Commission 2016. <https://dcf.wisconsin.gov/files/fotf/pdf/fotf-finalreport.pdf>. Published December 2016. Accessed September 29, 2018.
17. ACOG Committee Opinion Number 586: Health disparities in rural women. *Obstet Gynecol*. 2014;123(2 Pt 1):384-388. doi:10.1097/01.AOG.0000443278.06393.d6.
18. Martins SL, Starr KA, Hellerstedt WL, Gilliam ML. Differences in family planning services by rural–urban geography: survey of Title X–supported clinics in Great Plains and Midwestern states. *Perspect Sex Reprod Health*. 2016;48(1):9-16. doi:10.1363/48e7116.
19. Simmons KB, Rodriguez MI. Reducing unintended pregnancy through provider training. *Lancet*. 2015;386(9993):514-516. doi:10.1016/s0140-6736(14)62444-2.
20. Trussel J, Hassan F, Lowin J, Law A, Filonenko A. Achieving cost-neutrality with long-acting reversible contraceptive methods. *Contraception*. 2015;91(1):49-56. doi:10.1016/j.contraception.2014.08.011.
21. National Institute for Children’s Health Quality. State strategies to increase access to LARC in Medicaid: “Contraceptive Access Now” and the expansion of LARC in Delaware. https://nashp.org/wp-content/uploads/2017/04/NASHP_LARC_Delaware-updated.pdf. Published March 2017. Accessed March 2018.
22. ASTHO: Maternal and child health: increasing access to contraception. Association of State and Territorial Health Officials. <http://www.astho.org/Programs/Maternal-and-Child-Health/Increasing-Access-to-Contraception/>. Published 2018. Accessed March 19, 2018.

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