

Improving Access to Long-Acting Contraceptive Methods and Reducing Unplanned Pregnancy Among Women with Substance Use Disorders

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ABSTRACT: Much has been written about the consequences of substance use in pregnancy, but there has been far less focus on the prevention of unintended pregnancies in women with substance use disorders (SUDs). We examine the literature on pregnancy incidence for women with SUDs, the clinical and economic benefits of increasing access to long-acting reversible contraceptive (LARC) methods in this population, and the current hurdles to increased access and uptake. High rates of unintended pregnancies and poor physical and psychosocial outcomes among women with SUDs underscore the need for increased access to, and uptake of, LARC methods among these women. A small number of studies that focused on improving access to contraception, especially LARC, via integrated contraception services predominantly provided in drug treatment programs were identified. However, a number of barriers remain, highlighting that much more research is needed in this area.

KEYWORDS: substance use, contraception, women, long-acting reversible contraception, opioid substitution treatment

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Background

Women account for approximately 30%–40% of clients attending drug and alcohol treatment services, and these rates are increasing, particularly as more young women are drinking at high-risk levels.^{1–3} However, women's reproductive health is generally not addressed by these services,⁴ despite documented poorer sexual and reproductive health, including less utilization of contraception, increased rates of unwanted pregnancy, adverse pregnancy outcomes, high rates of children in out-of-home care, and increased sexually transmitted infections among these women relative to the general population.^{5–11,98}

Recently, there has been debate about the best approach for addressing the contraceptive needs of women with substance use disorders (SUDs) with a focus on reducing the many barriers to access and uptake experienced by this population.^{12–14} In this article we aim to examine the existing literature on the incidence of unintended pregnancy among women with SUDs, the clinical and economic benefits of increasing access to long-acting reversible contraceptive (LARC) methods in this population, and the current hurdles to greater uptake. We focus on women with SUDs (including alcohol); however, we

draw data from the literature on women in opioid substitution treatment, many of whom are polysubstance users. Tobacco use alone is not considered.

Methods

We searched MEDLINE, Web of Science, EMBASE, and Cochrane Collaboration databases for all articles published between January 1990 and December 2015. For substance use, we used the terms (substance related disorders OR drug abuse OR substance withdrawal OR Opioid-related disorders OR Substance abuse) AND (Pregnancy OR Pregnancy, unplanned OR Reproductive Health OR Reproductive Medicine OR Women's Health OR Adolescent OR Family planning services OR Contraception). We combined the substance use terms and reproductive health and contraception terms with Mesh headings (Delivery of Health Care OR Health Service Accessibility OR Family Planning Services). We separately searched for papers addressing the advantages of use and barriers to access for long-acting reversible contraception by using the terms (IUDs OR intrauterine devices OR intrauterine devices, medicated OR implants OR Implanon OR



etonorgestrel OR long-acting reversible methods OR LARC) alone and in combination with other terms (Barriers OR Obstacles OR Service Delivery). We restricted the articles to those available in English. We hand searched reference lists of identified articles and relevant review articles for additional citations. We did not consider abstracts of conference presentations, dissertations, or unpublished studies, nor contacted any authors for additional information.

Substance use During Pregnancy

Substance use during pregnancy is associated with increased maternal and neonatal morbidity and mortality, and these issues have received substantial research attention.^{15–17} An Australian obstetric outcome database on 89,080 confinements identified that substance use during pregnancy was associated with increased risks for maternal complications (placental abruption, odds ratio [OR] 2.53) and neonatal complications (preterm birth, OR 2.63; stillbirth, OR 2.54; and neonatal death, OR 2.92).¹⁸ Studies in Scotland and England have also documented increased preterm birth and low birth weight among babies of illicit drug users.^{16,19} This is in addition to the risk of neonatal abstinence syndrome, which can occur in over a quarter of babies born to women on methadone maintenance.²⁰

These issues result from the effects of substance use (eg, dependence or regular intoxication from alcohol, stimulants, benzodiazepines, or opioids), the social determinants of health (socioeconomic status, ethnicity, and education status), and/or poor access or utilization of appropriate health services. While the effects of perinatal substance use have been well documented, there has been limited research on how to prevent reproductive and sexual ill-health among women with SUDs, including those attending drug treatment services.⁸

Unintended Pregnancies in the General Population

One-in-two pregnancies in the US and one-in-three pregnancies in the UK and France are unintended, and approximately half of these end in termination of pregnancy.²¹ Unintended pregnancies result from contraceptive failure, incorrect or inconsistent use of a method, or lack of use of any form of contraception.^{22,23} Interventions to increase adherence to pills and condoms, such as enhanced counseling, have not consistently improved contraceptive use patterns, continuation rates (ongoing use of the method after 12 months), or unintended pregnancies.²⁴ Recently, a US prospective study found that women using user-dependent methods (pills, patches, and rings) were 20 times more likely to have an unplanned pregnancy than women using an intrauterine device (IUD) or implant.²⁵

Unintended Pregnancies in Teenagers and Women using Drugs and Alcohol

Women with SUDs have higher rates of unintended pregnancy compared with the general population.^{5,14,26–28}

Similarly, intoxication with alcohol has been found to be associated with risky sexual behavior and nonuse of contraception among a population-based sample of 3,163 young Spanish women.²⁹ A survey of 946 pregnant opioid-using women entering treatment in the US found that 86% reported a history of at least one unintended pregnancy.⁷ A UK survey involving 5,686 women of reproductive age reported on data of 591 women who had been pregnant in the 12 months prior to the survey with a known outcome.²⁸ Women who reported recent use of illicit drugs other than cannabis were almost three and a half times (adjusted OR 3.41) more likely than other women to report an unintended pregnancy.²⁸ Similarly, 86% of 202 Australian women in opioid substitution treatment reported a previous pregnancy.²⁶ For almost half the sample (47%), the first pregnancy occurred before the woman was aged 18 years; only 15.8% of all pregnancies in this group of women was intended.²⁶

Adolescents who are sexually active and use substances are particularly vulnerable to unintended pregnancies for multiple reasons. Teen users of alcohol, tobacco, cannabis, or other drugs are more likely to be sexually active, to participate in risky sexual behavior, and to experience the consequences of risky sex, including sexually transmitted infections and unintended pregnancy, compared with teens who do not use drugs and alcohol.^{30,31} Adolescents are also inherently more fertile and nonuse of contraception is common, particularly among those using substances.^{32,33}

Use of Contraception

A recent international review assessed 24 studies of women with a SUD and found that although use of contraception ranged widely across studies, the median prevalence of use was 55%.³⁴ This estimate is broadly in line with US women from the general population included in the National Survey of Family Growth, where the prevalence 2011–2013 estimate was 61.7%.³⁵ However, the review also found that among women not planning to become pregnant, condoms were the most commonly used methods across studies (62% pooled prevalence). In comparison, only 9.4% of the US women in the National Survey of Family Growth relied on condoms as their primary method.³⁵ Condoms require regular and consistent use, and typically in the first year of use, 15% of women will experience an unintended pregnancy.³⁶ Use of the more reliable reversible methods among SUD women, namely, IUDs or implants, was low (8% pooled prevalence), but not dissimilar to US women in the National Survey of Family Growth.

Cost-effectiveness of contraception. There is a clear need to improve access to contraceptive services for women in substance use treatment programs and encouraging use of the most reliable contraceptives will result in greater reduction of unintended pregnancies.³⁷ Furthermore, there is good evidence that family planning is among the most cost-effective of all health interventions.^{38,39} The cost savings stem from a reduction in unintended pregnancy and, in the



SUD population, also arise from reducing the high level of perinatal care and intensive social services intervention that frequently ensues.

What are the long-acting reversible methods and why should they be promoted? The IUDs and the implants are collectively known as LARC methods, and these are the most effective and cost-effective reversible methods available. They have an inherent ability to prevent pregnancy, but their effectiveness also arises from the fact that they are set and forget methods that do not require daily compliance unlike condoms or the oral contraceptive pill. These are attributes that women themselves rate highly when considering their contraceptive options.⁴⁰

There are two types of IUDs, namely, the copper-bearing devices and the hormonal devices. The copper IUDs are hormone free and exert their action through a toxic effect on sperm and an inflammatory effect on the endometrium.⁴¹ The latter effect results in a 30% or more increase in menstrual flow, which has been cited as one of the most common reasons for discontinuation of the method.^{42–44} The copper IUDs lasts 5–10 years depending on the copper content. The intrauterine system (IUS; Mirena®, Bayer Schering Pharma) releases progestogen that thickens the cervical mucous preventing sperm passage and thins the endometrium preventing implantation.^{45–47} The most commonly experienced side effect is unscheduled bleeding, which often settles without treatment.⁴⁸ The IUS is licensed for five years of use. There are only a few absolute contraindications to either of the intrauterine contraceptive methods. These include current pelvic inflammatory disease, tumors of the reproductive tract, malignant gestational trophoblastic disease, unexplained vaginal bleeding, and any condition causing distortion of the uterine cavity. Neither a past history of pelvic inflammatory disease nor nulliparity is a contraindication.⁹⁷ The insertion involves a procedure that may be uncomfortable and carries the risk of perforation of the uterus (1–2 in 1,000 procedures)⁴⁹ and pelvic infection, which is increased in the first 20 days after insertion.⁵⁰

Contraceptive implants exert their contraceptive effectiveness through ovulation suppression. They are a progestogen-only method and the single-rod device consists of a 4 mm long matchstick-like rod that is inserted subdermally, usually into the upper middle aspect of the nondominant arm.⁵¹ The single-rod implant (Implanon NXT®, or Nexplanon®) is effective up to three years. Women can experience a range of side effects including mood changes and acne, but it is the irregular bleeding that is the most common side effect and the one that results in early discontinuation of the method. Indeed within a year, around 25% of women will have the implant removed mostly because of unpredictable or prolonged bleeding.^{48,52} Despite side effects, more women continue to use the implants after one year compared with the pill, an indirect measure of satisfaction.⁵³

The implants and IUDs are the most effective reversible methods available.

Pregnancy incidence in the first year of typical use is 0.1% for the IUDs and 0.05% for implants compared with 3% for injections, 8% for oral contraceptives, and 21% for condoms (Table 1).³⁶ The contraceptive CHOICE study in the US demonstrated high levels of acceptability of LARC methods among women who were provided with balanced information about contraceptive options along with the removal of financial barriers.⁵⁴ In this study, 70% of reproductive aged women chose the LARC methods and their incidence of unintended pregnancies within three years was twenty times less that of women who chose a pill, patch or ring.²⁵

Although there is a relatively high initial cost, all LARC methods are more cost-effective than the combined oral contraceptive pill even at one year of use.^{55,56} An analysis of a publicly funded family planning program calculated that LARC methods save US\$7 in costs from unintended pregnancy for every US\$1 spent.⁵⁷ Thus, improving access to the LARC methods is likely to be cost-effective.

Barriers to LARC Access and Uptake

Despite good evidence on the effectiveness and acceptability of LARC methods, as well as the availability of evidence-based

Table 1. Comparative efficacy of LARC methods and user-dependent methods.

METHOD	% OF WOMEN EXPERIENCING AN UNINTENDED PREGNANCY WITHIN THE FIRST YEAR OF USE*	
	TYPICAL USE	PERFECT USE
Progestogen-only etonogestrel implant	0.05	0.05
Levonorgestrel Intrauterine System (IUS)	0.2	0.2
Copper intrauterine device (Copper T)	0.8	0.6
Depot medroxyprogesterone acetate (DMPA) injection	6	0.2
Oral contraception (combined oral contraceptive pill or progestogen-only pill)	9	0.3
Combined hormonal patch	9	0.3
Combined hormonal ring	9	0.3
Diaphragm	12	6
Male condom	18	2
Fertility awareness methods	24	0.4–5
Female condom	21	5
Withdrawal	22	4

Notes: Perfect use efficacy is based on various international published trial data. Typical use is based on data from the US National Surveys of Family Growth and may only apply to US women. Reprinted from Trussell³⁶, with permission from Elsevier.



guidance, in many settings there remains a lag in accurate knowledge among providers, as well as insufficient training in LARC insertion.^{5,58–60} Many studies have documented a lack of awareness of the benefits of LARCs among women.^{37,61} For intrauterine contraception, a key barrier is misperceptions about the risks of infection and infertility based on the recollection of earlier types of devices.^{62,63} For implants, the reputation for unacceptable side effects potentially limits uptake of this method. These reputations are not evidence based: modern intrauterine methods have no effect on the ability to conceive once removed⁶⁴ and are suitable for use in both young women and those who are nulliparous. In addition, a past history of a sexually transmitted infection is not a contraindication to use.⁶⁵ All LARC methods have high continuity and satisfaction rates, indicating that their side effects are acceptable for most women (Table 2).⁵³ These methods are particularly suitable for women with substance abuse issues as they are set and forget methods that do not require daily compliance.

Barriers to Contraception among Women with SUDs

Women with SUDs will face additional barriers to LARC uptake and indeed report difficulties using conventional systems of care for a number of reasons. These include a range of barriers at the patient level such as misperception of fertility, intimate partner violence with reproductive coercion, fear of losing custody of children, and denial or embarrassment regarding their substance use.^{66–68} Recently, Edelman et al.^{69,70} identified past histories of sexual abuse and associated trauma, which is prevalent among women with SUDs,⁷¹ as a barrier to seeking sexual health care, including contraception. Provider/clinic factors represent another level of barriers, which comprise issues such as stigma, fear or experience of forced treatment, unwillingness of services to provide comprehensive care, and provider misunderstanding about the risks of contraception in SUD. It is worth noting, for example, the high prevalence of viral hepatitis among women with a SUD, especially those who have a history of drug injection which may scare some practitioners off prescribing hormonal contraceptive methods even in situations when not contraindicated.^{72,73}

There are also system barriers that include the costs and difficulty of accessing services. Women in drug treatment needing sexual and reproductive health advice and management are typically referred to external services, either to their general practitioners, sexual health clinics, or family planning centers, a model of care that does not adequately address the needs of these women as many will not follow through with these appointments.⁷⁴ Indeed, for those with severe SUDs, such as some people who inject drugs, some commentators have argued referral is tantamount to service denial.⁷⁵ These three levels of barriers exist across many settings, often despite the health-care model available.

Mechanisms to Improve Contraceptive Knowledge and Uptake of LARCs among all Women

Expanding access to LARCs for all women was declared a national public health priority in the US in 2009⁷⁶ and has been supported by the National Institute for Health and Care Excellence in the UK since 2005.⁷⁷ Evidence from cost-effectiveness studies in the UK has driven a program, whereby general practitioners are offered incentives to provide information about LARCs. In the US contraceptive CHOICE study, increasing women’s knowledge of LARC methods and reducing the cost of access led over 70% of women in the study to choose a LARC method.⁶⁰ The most successful programs have communicated clearly the benefits of LARC to women as well as offering services with skilled providers that reduce clinical and financial barriers to access.

Mechanisms to Improve Contraceptive Knowledge and Uptake of LARCs among Women using Substances: Integrated Services

As indicated previously, women with SUDs may face obstacles in accessing reproductive services. One solution may be the integration of contraceptive services into drug health clinics. In this way, women may be enabled to more easily address their various needs in an environment that is both more familiar and less threatening. Similarly, integrated services may be more successful if they can provide low-threshold service access, ie, services with few or no barriers to access.^{78,79}

Table 2. Common side effects and 12-month continuation rates of reversible contraception.

METHOD	NUMBER OF WOMEN USING THE METHOD	1 YEAR CONTINUATION RATES (%)	PROPORTION STATING THEY WERE “VERY SATISFIED” WITH THE METHOD (%)
Levonorgestrel intrauterine system	1,890	87.5	70.4
Copper intrauterine device	434	84.0	65.6
Implant	522	83.3	54.8
Injection	313	56.5	42.3
Oral contraceptive pill	478	55.1	41.0
Vaginal contraceptive Ring	431	54.2	46.6

Note: Adapted from Peipert J, Zhao Q, Allsworth J, et al. Continuation and satisfaction of reversible contraception. *Obstet Gynecol.* 2011;117(5):1105–13. Promotional and commercial use of the material in print, digital or mobile device format is prohibited without the permission from the publisher Wolters Kluwer Health. Please contact healthpermissions@wolterskluwer.com for further information.



Hepatitis C treatment,⁸⁰ hepatitis B vaccination,⁸¹ parenting support,^{82,98} and maternal mental health services⁸³ have all been successfully integrated into drug treatment programs. However, other drug user services, such as needle and syringe programs and other harm reduction initiatives, have also been successfully augmented to provide a wider variety of primary health-care needs,⁸⁴ including sexual health.⁸⁵ These services target a wide range of drug users, including active (ie, nontreatment seeking) drug users, thus integrating contraceptive and reproductive health services in these settings may reach a much broader range of substance-using women.

Stigma around drug use has been identified as a barrier to accessing sexual health care in the UK⁶⁹ and in Australia; people who inject drugs and opioid substitution treatment clients are less likely to report their drug use in general primary health-care settings.^{78,79,86} Integrated services may be especially beneficial for women who have experienced sexual abuse, which is prevalent among women with SUDs.⁶⁹⁻⁷¹ These issues may be more readily overcome in drug and alcohol treatment or harm reduction settings, where knowledge of the complex and often highly marginal lives of many women with SUDs is recognized and understood.

The need for addiction medicine to expand clinical services to incorporate preconception counseling has been highlighted by other authors.⁸⁷ Indeed, Australian qualitative research found the women themselves have indicated that contraception services delivered on site at a drug treatment program is the model most women with SUDs and drug treatment staff prefer.⁸⁸ However, there is limited research in this area. In one study of women in drug treatment services in Philadelphia, 958 women accessed integrated family planning clinics over a 24-month period, and both the drug treatment staff and the clients preferred on-site family planning services that operated separately from, yet in collaboration with, drug treatment services.⁸⁹ Although now 25 years old, this study revealed the feasibility of the integrated contraceptive service, but did not directly report contraception or pregnancy outcomes nor cost-effectiveness.

More recently, a number of small pilot studies have been reported. An observational study of 671 drug-dependent women receiving antenatal care within a pediatric unit of a drug treatment facility found that only 14% of women declined contraception following detailed contraceptive education and counseling during their third trimester of pregnancy.⁹⁰ A large proportion (32%) of the women in this study opted for a tubal ligation, but only half (16%) of them ultimately underwent the procedure with the majority opting for a reversible form of contraception, mainly injections or implants. The most common reversible forms of contraception taken up postpartum were hormonal injections (27%) and hormonal implants (15%).⁹⁰

Heil et al presented preliminary findings from a randomized control trial assessing contraception uptake among 21 methadone maintained women who were offered the World Health Organization's contraception protocol, a free supply of

their chosen prescription contraceptive method and financial incentives to attend follow-up.⁹¹ Compared with women in the usual care group, where referrals to external services were offered, the uptake of prescription contraception was higher in the intervention group (90% vs 33%), with 36% choosing LARC methods.⁹¹

Barriers to Integrated Services

Despite the many potential benefits of integrated contraception service delivery, some barriers persist. Integrated service delivery can be complex, even where there is explicit need and apparent acceptability. Recent experience with integrated hepatitis C services at opioid substitution programs highlights competing priorities as important barriers for clients. These priorities comprise housing, family issues, and other more immediate health issues.⁹² Thus, drug treatment programs that can provide a range of services to address these complex needs may be more acceptable to women and increase uptake of such services.¹³

System-level barriers include the cost and expertise required to delivery contraception services. Frequently, the implementation of an integrated contraception service will require staff education and training and may require engaging outside expertise such as gynecologists or sexual health clinicians, which may be costly, adding further financial burden to the already underresourced services. In the past, across several states in the United States, external family planning clinics and non-government organizations have sourced additional funding to provide intermittent advice and services to women in treatment centers with documented success.⁹³ The long-term benefits of contraception uptake in SUD populations are likely to be substantial, although there has been limited economic evaluation in this area. It is important to note that in the absence of dedicated resources, perceptions of increased workload can make clinic staff reticent toward new programs and may impede success.

Our own preliminary findings from a pilot contraception clinic in an opioid substitution treatment program has reported less favorable results, with only 2 of the 12 potentially eligible women (ie, sexually active, aged <50 years, not using contraception and wishing to avoid pregnancy) presenting for contraception assessment.⁹⁴ Further work is necessary to determine the barriers to the clinic presentation in this instance, but they are likely to be consistent with those described earlier.

Conclusion

The available evidence suggests that drug-using women, especially those with a SUD, are at elevated risk of unintended pregnancy. Yet despite this, they have typically had poor access to effective contraception, especially LARC, due to cost barriers, multiple referrals, stigma, and concerns regarding child protection among others. There are a small, but a growing, number of studies assessing the benefit



of contraception services integrated into drug treatment programs, but limited data means that more work in this area is still needed to determine an array of acceptable and effective models.

Author Contributions

Both authors contributed equally to the manuscript development and jointly developed the structure and arguments for the paper. Both authors reviewed and approved the final manuscript.

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