

**Increasing Screening for the Use of Long-Acting Reversible Contraception**

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### **Abstract**

*Purpose:* The purpose of this project is to determine if a contraceptive screening tool utilized by care providers in a primary care practice would increase patient selection of long-acting reversible contraceptives (LARC) as a contraceptive choice.

*Methods:* The family nurse practitioner at a rural women's health practice in North Carolina was given an educational presentation on the safety and efficacy of LARC methods and appropriate utilization of the screening tool. Ancillary office staff who had direct contact with patients were also educated on the administration of the screening tool to eligible participants. A chart review was then performed to determine screening tool adherence and LARC uptake during project implementation.

*Results:* Overall adherence to the screening tool was approximately 20%, with 30% of women screened choosing a LARC method. Analysis demonstrated a weak correlation between screening tool use and LARC uptake. The small sample size and low rates of adherence may limit the generalizability of this project.

*Conclusions:* Outcomes for this project demonstrated a poor relationship between LARC screening and the selection of LARC as a contraceptive choice. Numerous limitations may have affected project outcomes. This project highlights the need for further research to bridge the gap between LARC education and LARC choice in the primary care setting.

**Keywords:** *women's health, contraception, contraceptive screening, long-acting reversible contraception*

### **Increasing Screening for the Use of Long-Acting Reversible Contraception**

The desire to choose when to reproduce has been present throughout history and attempts at contraceptive practices have been present for just as long. Even in societies where the social, political, or religious mandates opposed contraception, women have tried various methods of birth control. In the United States (US), it was only in the 1965 court case *Griswold vs. Connecticut* that the Supreme Court overturned all state and local laws banning contraceptive use by married couples (Planned Parenthood Federation of America, 2012). Almost all women will use some form of contraceptive in the course of their reproductive years, suspending use for various reasons such as seeking pregnancy, being pregnant, or not being sexually active (Daniels et al., 2013).

Long-acting reversible contraceptives have had a complicated history since the first intrauterine device (IUD) was invented in Poland in 1909. One hundred years after the introduction of the first IUD, the American College of Obstetricians and Gynecologists (ACOG) published recommendations of long-acting reversible contraceptives (LARC) as the best choice contraceptive method for most women. Currently, there are two types of long-acting reversible contraceptives available in the US, the IUD and hormonal implants (Shoupe, 2016).

Overcoming the history of IUDs and other hormonal contraceptives has been gradual. However, the two types of LARCs are now considered safe, easy to use, easily reversible, and the most effective reversible contraceptives available. The LARC options are not only safe but some types of LARCs are now utilized as treatment of abnormal uterine bleeding. Both types of LARCs have a high cost at the time of placement but are cost-effective in the long term (Cleland et al., 2011).

The National Center for Health Statistics (NCHS) published findings regarding current contraceptive use among US women of reproductive age from 2017-2019 and found LARC use was 10.4% overall. In the same study, it was found that contraceptive pills were the most common type of contraceptive (14%). This finding is despite the recommendations from ACOG and research data showing the unintended pregnancy rate when using LARCs was less than 1%. In comparison, the unintended pregnancy rate for women using contraceptive pills was found to be 9% (Daniels & Abma, 2020).

**Purpose**

The purpose of this quality improvement (QI) project is to determine if the use of an evidence-based contraceptive screening tool in a rural women's health practice improves provider adherence with the utilization of a screening tool and increases the use of LARCs in the population of women who are of reproductive age.

The use of a contraceptive screening tool in the chosen patient population can assist in creating an opportunity for discussion of contraceptive options between the patient and provider. In addition, the provider can use this time to educate patients on LARC methods and dispel any misinformation the patient may have about their contraceptive options. In doing so, the provider will be able to empower his or her patient population to make informed decisions about her sexual health and contraceptive needs.

**Background**

The rate of unintended pregnancies worldwide has fallen since the early nineties. This decline is attributed to 61% of unintended pregnancies ending in elective abortion (Guttmacher Institute, 2019). Of the 61 million women in the US who are of reproductive age, 43 million (70%) are at risk of unintended pregnancy (Guttmacher Institute, 2019), and 49% experience unintended pregnancy (Zapata et al., 2016). Specifically, the women are sexually active and do not desire pregnancy but experience failure of their chosen contraceptive method. Given that most families wish to limit the number of children they have to two, a woman will require the use of contraceptives for approximately 30 years (Guttmacher Institute, 2019).

One of the goals of Healthy People 2030 includes goals to improve contraceptive planning and decrease the rate of unintended pregnancies to 35.6% (United Health Foundation, 2020). Extensive research has proven unintended pregnancy rates were highest among adolescents aged 15-19 years (75%). Among all women of reproductive age, women who experience unintended pregnancy tend to live at <100% below federal poverty level, have not completed high school, were non-Hispanic black or African American women, and were cohabiting but never married (Centers for Disease Control and Prevention [CDC], 2019).

Unplanned pregnancies can negatively impact both babies and mothers and have been linked to adverse consequences such as postpartum depression, delayed prenatal care, premature birth, and low birth weight (National Institute for Children’s Health Quality [NICHQ], n.d.). The LARC contraceptive methods available in the US are IUDs (both hormonal IUDs and non-hormonal copper-containing IUDs) and sub-dermal hormonal implants (Newhouse, 2022).

### **IUD History**

It was not until 1968 that the first IUD was approved by the US Food and Drug Administration (FDA). The first types of IUDs approved by the FDA, including the Copper-T® and the Dalkon Shield®, were widely utilized in the US, but concurrently design flaws began to be recorded, with the deaths of six women and many more women experiencing complications secondary to use of IUDs. The impact of these complications resulted in the removal of all but one IUD from the US market by 1986 (Shoupe, 2016).

A resurgence of the use of the IUD occurred with the introduction of the non-hormonal Paragard® IUD in 1988 and the hormonal IUDs in the early 21<sup>st</sup> century. The Paragard® IUD is a hormone-free, T-shaped IUD wrapped in copper wire that can remain in place for up to ten years. Since the Paragard® begins working immediately upon placement, this type of contraceptive IUD is also used for emergency contraception and does not require the use of backup contraception after placement (Kaiser Family Foundation [KFF], 2020).

The Mirena® IUD has been available in the US since 2001. Since then, three more hormonal IUDs have been approved for use in the US. The four hormonal IUDs are referred to as “LNG-IUDs.” This is due to the mechanism of action of these IUDs, all of which contain varying levels of the hormone levonorgestrel. All four hormonal IUDs have a similar mechanism of action through a change in the amount and viscosity of the cervical mucus. Fertility returns upon removal of the IUD device (KFF, 2020).

While these IUDs cannot be used for emergency contraception, they are more frequently the choice of women who elect to use an IUD for contraception due to the frequent side effect of minimizing

menstrual blood loss while in place. Each of the four hormonal IUDs each have a different lifespan: Mirena<sup>®</sup> and Kyleena<sup>®</sup> can remain in place for up to five years, Skyla<sup>®</sup> for up to three years, and Liletta<sup>®</sup> for up to six years (KFF, 2020).

### **Implant History**

Hormonal implants are a recent addition to the contraceptive market, with the first hormonal implant being approved by the FDA in 1990. The Norplant<sup>®</sup> contraceptive system was removed from the market twelve years later due to several factors. These included issues surrounding women's coercion to have the implants if they were convicted of child abuse or drug abuse, the trauma to patients and subsequent scarring on removal, and limited supplies of the six rods that comprised the Norplant<sup>®</sup> system (Shoupe, 2016).

In 2006, the FDA approved a new implant contraceptive system called Implanon<sup>®</sup> that consisted of one rod and was easily inserted and removed. The Implanon<sup>®</sup> system was replaced by the Nexplanon<sup>®</sup> system in 2010. The Nexplanon<sup>®</sup> system improved the ease and pain of insertion and contained a marker of barium to make it visible with imaging, which enables easier removal (Shoupe, 2016).

### **Nature of the Problem**

Almost half of women experiencing an unintended pregnancy were due to incorrect use or failure to use a contraceptive method (Secura, 2013). Use of a LARC eliminates user error and reduces unintended pregnancy rates to less than 1% (Newhouse, 2021). Still, according to the CDC National Center for Health Statistics (NCHS), only 10.4% of women age 15-49 in the US have elected to use long-acting reversible contraception (CDC/NCHS, 2020).

These methods provide reliable contraception lasting for several years, enable a quick return to fertility when discontinued, and are the most effective reversible contraception available in the US (Curtis & Peipert, 2017). Long-acting reversible contraceptives are considered advantageous due to their high effectiveness rate; they require no further effort after placement, and fertility returns immediately upon removal (Committee on Practice Bulletins-Gynecology, Long-Acting Reversible Contraception Work Group, 2017). The complication rate among women utilizing a LARC is less than 1% (American College

of Obstetricians and Gynecologists' Committee on Gynecologic Practice, & Long-Acting Reversible Contraceptive Expert Work Group, 2016).

### **Contraceptive Education and Screening**

Providers generally have favorable attitudes towards LARC methods. However, they may fail to offer these methods due to a lack of education or training, lack of confidence in placement, or upfront placement costs. Patients, who often rely on providers for their contraceptive recommendations, may not consider LARC methods when planning contraception. The knowledge gap between both patients and providers can limit the uptake of these methods despite current recommendations (Committee on Gynecologic Practice Long-Acting Reversible Contraception Working Group, 2015).

Other barriers to LARC use include a lack of patient understanding, costs, and availability of providers trained in contraceptive counseling (Olson et al., 2018). Provider bias has also been noted as a barrier in providers offering LARC methods or specific patient populations, such as minority or low-income women, instead of higher-income women (Higgins, Kramer, & Ryder, 2016). Patients generally cite healthcare providers as a trusted source of education, especially regarding contraceptive choices (Higgins, Kramer, & Ryder, 2016).

The utilization of provider education in addition to contraceptive counseling has been shown to result in higher rates of LARC uptake when compared to contraceptive counseling and usual care alone (Buckel et al., 2019). Educational interventions can help increase the knowledge of both patients and providers and ensure that informed decisions are made regarding contraception and its use (Pazol et al., 2018).

### **Rationale**

Long-acting reversible contraceptives are known to be the most effective contraceptive method available to women (Curtis & Peipert, 2017). However, their complicated past and patient and provider misperceptions may decrease their uptake despite continued professional recommendations and excellent safety and efficacy profiles. Educating providers on LARC methods and providing them with a contraceptive screening tool would allow patients and providers to discuss contraceptive options and

choose a method that best fits the patient. This also creates an opportunity for a well-educated provider to address any concerns or misperceptions the patient may have about contraception, particularly LARCs.

### **Theoretical Framework: The Transtheoretical Model**

The Transtheoretical Model, sometimes called the Stages of Change Model, focuses on the decision-making process of an individual and is a model for intentional change (LaMorte, 2019). The model was initially developed for individual patients to change health behaviors, such as those seeking smoking cessation (White, Dudley-Brown, & Terhaar, 2016). The model theorizes that individuals move through six stages when attempting to implement a change. These stages are pre-contemplation, contemplation, preparation, action, maintenance, and termination (LaMorte, 2019).

Precontemplation refers to failure of an individual to acknowledge a problem and does not plan for a change. Contemplation is the stage in which the individual becomes aware of the issue and begins to consider making a change. The preparation stage involves the period in which the individual is ready to change and has begun preparing to make the change. The action stage is when the individual engages in change activities and coping behaviors to manage the change. The maintenance stage is when the change is sustained, and relapse is actively avoided (White, Dudley-Brown, & Terhaar, 2016).

The choice of which contraceptive method to use is an individualized decision for each woman, just as the recommendation for contraception is a choice providers must make, based on their knowledge and background. This choice aligns well with the stages of change model as contraception involves choosing uptake and maintenance of pregnancy prevention for a chosen period. The project seeks to encourage this uptake by introducing the option of long-acting reversible contraception to women who may not have considered a LARC as one of their contraceptive options. In doing so, one will utilize the Transtheoretical Model to assist in contraceptive education and uptake.

### **Review of Literature**

Long-acting reversible contraceptives have an excellent safety and efficacy profile that may benefit most women. They are highly effective for an extended period with little to no effort needed from

the user. Long-acting reversible contraceptive methods include both the hormonal and non-hormonal IUD and the subdermal contraceptive implant (Newhouse, 2022).

### **Current Guidelines for the Use of LARC Methods**

The different types of LARCs have been shown to provide a number of benefits to women who elect to use them. In addition to their ease of use, low adverse effect profile, and high effectiveness rate, these methods are generally approved for all women. The US Medical Eligibility Criteria for Contraceptive Use classifies LARCs as a Level 1 or 2 for acceptability of use. Level 1 is no restriction against the use of the method, and Level 2 means the benefits of use generally outweigh the theoretical or proven risks. Most absolute contraindications for LARCs, listed as a Level 4, include the presence of sepsis, gynecologic infection, gynecologic cancers, or suspicion thereof, or physical anomalies that would make placement of the LARC device difficult or impossible (Curtis et al., 2016).

There are few contraindications for LARC use, with guidelines promoting LARCs as first-line contraceptive methods for even nulliparous women and adolescents. Contraceptive practices using any LARC means the device can be placed at any time during the menstrual cycle as long as pregnancy can be reasonably excluded. They can also be placed in the immediate postpartum period or following abortion procedures (Randel, 2012).

### **Physiologic Response to LARC Methods**

Despite the urban myths surrounding the use of the levonorgestrel-containing IUD, these devices will not abort an existing pregnancy (Newhouse, 2021). The amount of hormone in each form of the LNG-IUD varies depending on the brand used. The current approved LNG-IUDs include Mirena, Liletta, Kyleena, and Skyla, from most hormone to least. LNG-IUDs' failure rate is approximately 0.33 per 100 women (Committee on Practice Bulletins-Gynecology, Long-Acting Reversible Contraception Work Group, 2017). The most common side effects associated with the LNG-IUD are changes in menstrual bleeding (irregularity that progresses to lighter flow or amenorrhea), lower abdominal pain, complexion changes, back pain, breast tenderness, headaches, mood changes, and nausea. Many of the side effects have been observed to diminish with time (Newhouse, 2021).

The non-hormonal IUD, brand name Paragard<sup>®</sup>, features copper in the device, which prevents pregnancy. The copper wire around the device prevents fertilization of the egg by both inhibiting sperm migration and viability. This device will not disrupt an existing pregnancy (Committee on Practice Bulletins-Gynecology, Long-Acting Reversible Contraception Work Group, 2017). It can also be used as a form of emergency contraception (Newhouse, 2021). The Paragard<sup>®</sup> IUD continues to be effective for up to ten years. Failure rates after one year of use are 0.8 per 100 women. After ten years, the failure rate is equivalent to that of female sterilization (Committee on Practice Bulletins-Gynecology, Long-Acting Reversible Contraception Work Group, 2017). The most common side effects of the copper IUD include increased menstrual bleeding and dysmenorrhea (Newhouse, 2021).

Complications associated with both forms of IUD are uncommon. Potential complications include expulsion, method failure, and uterine perforation. The expulsion rate is between 2% and 10% during the first year of use. The risk of uterine perforation is also rare, occurring in approximately 1.4 per 1,000 LNG-IUD placements and 1.1 per 1,000 copper IUD placements (Committee on Practice Bulletins-Gynecology, Long-Acting Reversible Contraception Work Group, 2017).

The contraceptive implant is the other form of LARC method available to women in the US. Nexplanon<sup>™</sup> is a single-rod etonogestrel implant that is approximately 40mm long and 2mm in diameter (Newhouse, 2021). The implant slowly releases the hormone over three years. It prevents pregnancy by suppressing ovulation, as well as thickening cervical mucus, and altering the endometrial lining. It has a contraceptive failure rate of 0.05%.

Common adverse effects of the Nexplanon<sup>™</sup> system include changes in menstrual bleeding patterns, gastrointestinal difficulties, headaches, breast pain, acne, weight changes, and vaginitis. Complications related to insertion and removal of the implant are uncommon, approximately 1% with insertion and 1.7% with removal. Complications associated with insertion include pain, bleeding, hematoma formation, deep or incorrect insertion, and unrecognized non-insertion. Removal complications include breakage of the implant or an inability to palpate or locate the implant due to deep insertion

(Committee on Practice Bulletins-Gynecology, Long-Acting Reversible Contraception Work Group, 2017).

### **Provider Disinclination**

All the LARC methods are relatively new to the market, making them prone to misinformation on their safety and efficacy. A systematic review by Daniele et al. (2017) examined both provider and lay perspectives on contraception, particularly long-acting reversible contraceptives. The review revealed many providers have low or uneven levels of knowledge about IUDs and limited training on their placement. It was noted many providers believe this method could entail serious side effects such as pelvic inflammatory disease. There was also a reluctance to use this method in women belonging to special populations such as HIV-positive women, teenagers, and nulliparous women. The study also found many of these misperceptions could be alleviated through correct information (Daniele et al., 2017).

Providers may also limit offering LARC methods to their patients due to a lack of education and training, as the individual placing the LARC method must be specially trained on placement. Providers may feel uncomfortable in placing them and may instead offer other methods of contraception. Many providers also fail to offer LARC methods in special circumstances such as in the postpartum period or after spontaneous or elective abortion. Although many providers believe LARCs are appropriate in these situations, less than 10% offered these methods during such times (Shoupe, 2016).

Education and training are significant predictors of the use of LARCs, with a lack of such cited as a significant barrier to LARC administration (Shoupe, 2016). Esposito & LoGiudice (2019) also identified that the underuse of LARC methods might be due to the providers themselves. Their study implemented a provider-based education program on the use of intrauterine devices (IUDs). It showed an increased provider favorability for IUDs and an increased IUD insertion rate following the educational program (Esposito & LoGiudice, 2019). Another study by Simmons and Rodriguez (2015) also showed that educating providers on LARC methods nearly halved the rate of unintended pregnancy in the chosen population by one-year post-intervention.

**Barriers and Benefits to Use**

Contraceptive misperceptions can deter patients and providers from utilizing LARC methods, even in appropriate situations. Research has shown patients also possess decreased knowledge and unfounded misperceptions about the use of LARCs for contraception. These include a fear of infertility, concerns about device insertion and removal, and its effect on menses. It has also been noted that both peers and providers can strongly influence women's attitudes about contraceptive methods (Daniele et al., 2017). A systematic review of literature by Eram (2017) also noted inaccurate beliefs about intrauterine contraception, which includes a fear of displacement or migration into the abdomen, infertility risks, and associations with certain cancers, pelvic inflammatory disease, or the method is only suitable for older, parous women.

Another barrier to LARC use is cost. These methods have a high up-front cost, anywhere from \$700 to over \$1000. In addition, rules for Medicaid and similar low-income programs may discourage patients from getting LARCs and may cost providers money to prescribe these methods (Price, 2020). Additional barriers such as the need to special order LARC devices may discourage women from returning for appropriate follow-up to have devices placed (Price, 2020). Offering same-day device placement has the potential to result in savings by insurance companies who are paying for two or more visits, as well as savings by avoiding unintended pregnancies and abortions (Wilkinson, Downs, & Tucker Edmonds, 2019).

The Contraceptive CHOICE study sought to determine if removing barriers such as cost, patient knowledge, and access to contraception would increase the uptake of LARC methods. The study provided LARCs at no cost to willing and eligible participants, notably those at risk for unintended pregnancy, and saw a subsequent decrease in unintended pregnancy and abortion rates in the population (McNicholas et al., 2014). Analysis of abortion rates, repeat abortion rates, and teenage pregnancies among participants following initiation of the Contraceptive CHOICE project fell to less than half of the national average and was significantly lower when compared to cities similar to the demographics of the project site (McNicholas et al., 2014).

### **Methods**

Implementing a contraceptive screening tool in the healthcare setting worked to equip the provider with the tools needed to appropriately counsel patients about their contraceptive options, including LARCs. Key components of this quality improvement (QI) project included a contraceptive screening tool to be incorporated into routine patient well visits and an educational presentation on long-acting reversible contraceptives. The primary outcome of this project was adherence to the utilization of the screening tool in routine practice. A chart review of daily patient encounters during project implementation was used to determine if eligible patients were screened appropriately at each encounter. The screening tool was introduced to eligible patients by the medical assistants upon intake for the appointment, then uploaded into the patient's chart for review by the healthcare provider and the principal investigator (PI).

The secondary outcome of this project was an increase in LARC uptake among the selected patient population. Process measures included assessing the screening tool's utilization at each patient well visit and the uptake of LARC methods after implementation of the screening tool.

### **Intervention**

This was a three-month, quality improvement project implementing a program designed to increase knowledge and choice of long-acting reversible contraception in the context of a doctorally-prepared nurse practitioner student designed and managed project, using a multidisciplinary team approach to contraceptive care. It employed specialized skills of the PI, who is a Doctor of Nursing Practice (DNP) student, support staff such as medical assistants, registered nurses, and a family nurse practitioner (FNP) in collaborative practice. The QI project setting was a rural women's primary care practice. All patients of reproductive age received the same intervention, and one FNP coordinated all aspects of the program.

The PI met with the provider at the chosen women's primary care setting to share an educational presentation on LARCs and their benefits in the patient population selected. The educational presentation was followed by information on how to utilize the LARC screening tool properly, named the

Contraceptive Plan Questionnaire, noted in Appendix A. Office support staff, such as registered nurses and medical assistants, were also invited to listen to the educational presentation and were educated on the administration of the screening tool. The PI also provided staff members with reference materials posted throughout the office explaining the purpose of the QI project and the appropriate steps for implementation.

The tool was administered to patients of reproductive age by ancillary staff prior to being seen by the provider. The provider reviewed the completed tool with the patient during the encounter, discussing the patient's responses on the screening tool and providing counseling to the patient on contraceptive choices. Choice of a LARC method was noted on the screening tool for data collection upon project completion. The PI monitored the number of screening tools utilized by the provider throughout the three-month project implementation period.

### **Measures**

The educational presentation given to the provider and office staff at the project location focused on the safety and efficacy of LARC methods, as well as the utilization of the screening tool. The primary provider in the practice was provided with the educational presentation during a one-on-one meeting with the PI. Office support staff were then presented with information on the administration of the screening tool, as well as the project purpose and importance of LARC screening.

The PI completed a chart review for the implementation period to identify patients eligible for screening, assessing if the screening tool was utilized and whether the individual patient selected a type of LARC as their contraceptive choice. Staff members would upload completed screening tools into the patient's medical record for review by the PI. Hard copies of the screening tool were also saved in a locked cabinet in the provider's office during the implementation period and shredded after completion of the QI project.

### **Analysis**

Descriptive statistics were used to examine the overall adherence to the screening tool and the uptake of LARC methods before and after project implementation. McNemar's test was used to analyze LARC uptake pre-and post-intervention.

### **Ethical Considerations**

This QI project was reviewed and approved as exempt by the Lenoir-Rhyne University Institutional Review Board (IRB). Participation was voluntary, and participants had the right to withdraw at any time without consequence or prejudice.

Data was managed securely on an encrypted flash drive and was entered into *Intellectus Statistics*<sup>TM</sup> for evaluation. A duplicate data set will be stored on a password-protected external drive to ensure safety in the event of damage to the original information. Data will be stored for five years after project completion and then destroyed.

A standardized informed consent already in place by the practice was obtained by all patients who elected to utilize a LARC method before placement and was outside the purview of this project. There was no external funding for this project. All project costs were borne by the PI.

## **Results**

### **Screening Tool Adherence**

Frequencies and percentages were calculated for the categories Screening Tool Used and LARC Chosen utilizing descriptive statistics. Overall adherence to the screening tool was 20% ( $n = 13$ ). Of those screened, 30% chose to uptake a LARC method, which equates to approximately 6.15% of the total data set ( $n = 4$ ). Frequencies and percentages are listed below in Table 1.

**Table 1**  
*Frequency Table for Nominal Variables*

Variable	<i>n</i>	%
Screening Tool Used		
No	52	80.00
Yes	13	20.00
Missing	0	0.00
LARC Chosen		
No	61	93.85

Yes	4	6.15
Missing	0	0.00

*Note.* Due to rounding errors, percentages may not equal 100%.

### LARC Uptake

McNemar's Chi-square test for 2 x 2 contingency tables was conducted to test the hypothesis that the outcome proportions were equal for Screening Tool Used and LARC Chosen. The results of the test were significant based on an alpha value of 0.05,  $\chi^2(1) = 9.00$ ,  $p = .003$ , suggesting the proportions were not equal for each outcome. Analysis utilizing this test show that there was no statistically significant relationship between utilization of the screening tool and LARC uptake. Table 2 presents the results of McNemar's Chi-square test.

**Table 2**

*Observed Frequencies by Screening Tool Used and LARC Chosen*

Screening Tool Used	LARC Chosen		$\chi^2$	df	p
	No	Yes			
No	52	0	9.00	1	.003
Yes	9	4			

### Descriptive Statistics

Summary statistics were calculated for each interval and ratio variable. Frequencies and percentages were calculated for each nominal variable. The average age for women screened was 32.34 years. The most common race observed was Caucasian ( $n = 55$ , 85%). The most frequently observed category of contraception was OCP ( $n = 27$ , 42%). The most commonly observed category of screening tool used was No ( $n = 52$ , 80%). The most frequently observed category of LARC chosen was No ( $n = 61$ , 94%). Frequencies and percentages are presented in Table 3.

**Table 3**

*Frequency Table for Nominal Variables*

Variable	n	%
Race		
Caucasian	55	84.62
Hispanic	6	9.23
African American	4	6.15

Missing	0	0.00
Contraception		
OCP	27	41.54
None	17	26.15
IUD	14	21.54
Depo	4	6.15
Barrier	1	1.54
NuvaRing	1	1.54
Nexplanon	1	1.54
Missing	0	0.00
Screening Tool Used		
No	52	80.00
Yes	13	20.00
Missing	0	0.00
LARC Chosen		
No	61	93.85
Yes	4	6.15
Missing	0	0.00

*Note.* Due to rounding errors, percentages may not equal 100%.

### Discussion

This project sought to determine if a provider-focused educational presentation paired with a contraceptive screening tool would increase the utilization of LARC methods among the patient population of the project site. Overall adherence to the screening tool was 20% among the eligible population, with 30% of those screened choosing to uptake a LARC method. Analysis with McNemar's Chi-square test demonstrated a statistically significant unequal relationship between patients screened and those who chose to utilize a LARC method. However, due to the low adherence rate of the screening tool and the small number of participants, it is difficult to determine if the relationship between the two variables is generalizable in other settings or populations.

The literature discussing LARC education and screening demonstrates a need for this form of quality improvement, with studies like the Contraceptive CHOICE project exhibiting remarkable outcomes in practice. The safety and efficacy of LARC methods have been consistently documented, and there is a gap between patient and provider education and LARC uptake. This project sought to bridge

this gap through education and screening, but its outcomes could not be generalized in a larger population.

Further research pertaining to this project may include investigating barriers to screening tool adherence or re-implementation in another practice setting. There may also be an opportunity for research in identifying other ways to bridge the gap between contraceptive education and screening.

### **Limitations**

The most significant limitation to this project is the small sample size, both due to a small data set and low adherence rates to the screening tool. The chosen project setting had limited hours and primarily saw postmenopausal women. This limited the number of women eligible for screening, which was further limited by decreased screening tool adherence rates among staff members. This may be due to personal barriers, differences in patient workup prior to seeing the provider, or even time constraints within the office. A major determinant of screening rates was the impact of the COVID-19 pandemic and decreased the number of patients seen in the office for well visits.

### **Conclusions**

This project highlighted the role the doctorally prepared nurse practitioner can play in quality improvement and the need for contraceptive education and screening to increase the uptake of LARCs as a contraceptive choice. Although this project's outcomes demonstrated a poor relationship between LARC screening and uptake, numerous limitations may have affected project outcomes. These limitations have likely influenced project outcomes so that one cannot determine if the results or basis of the quality improvement project were clinically significant or generalizable. However, this project presents ample opportunity for further research and advancement in the area of women's health and quality improvement.

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**Appendix A**  
**Contraceptive Plan Questionnaire**

1. Are you currently using any form of birth control (contraception)?

Yes                      No

If you are using birth control, what type are you using?

2. How important is discussion of contraception to you at this time?

Very important                      Somewhat important                      Not important

3. What types of contraception have you used in the past?

4. How important is it for you to avoid pregnancy at this time?

Very important                      Somewhat important                      Not important

5. How important is it for you to use some form of birth control right now?

Very important                      Somewhat important                      Not important

6. When do you plan to have a child or your next child?

In the next year      In the next five years                      Not planning another pregnancy

7. How happy would you be if you were pregnant within the next year?

Very happy                      Mixed feelings                      Unhappy

8. How upset would you be if you were pregnant within the next year?

Very upset                      Mixed feelings                      Not at all upset

9. How happy would you be if you were pregnant in the next five years?

Very happy                      Mixed feelings                      Unhappy

10. How upset would you be if you were pregnant in the next five years?

Very upset                      Mixed feelings                      Not at all upset

11. How sure are you that you could plan ahead to use birth control?

Very sure                      Somewhat sure                      Unsure

12. How important is it for your contraception method to stop your periods for the time you are using a particular method?

Very important

Somewhat important

Not important

13. How sure you that you could remember to take a pill at the same time every day?

Very sure

Somewhat sure

Unsure

14. Are you interested in discussing contraception today?

Yes

No