

PROVIDERS' KNOWLEDGE, PERCEPTIONS AND VIEWS OF PRESCRIBING
LONG-ACTING REVERSIBLE CONTRACEPTION TO ADOLESCENTS IN A
SOUTHWEST COMMUNITY HEALTH CENTER

by

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As members of the DNP Project Committee, we certify that we have read the DNP project prepared by Stephanie Lynne Schafer entitled "Providers' Knowledge, Perceptions and Views of Prescribing Long-Acting Reversible Contraception to Adolescents in a Southwest Community Health Center" and recommend that it be accepted as fulfilling the DNP project requirement for the Degree of Doctor of Nursing Practice.

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STATEMENT BY AUTHOR

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ABSTRACT

This paper describes a Doctor of Nursing Practice (DNP) quality improvement project that identifies provider's knowledge, perceptions, and views surrounding the prescription of long-acting reversible contraception (LARC) to female adolescents, ages 15 to 19, for the purposes of reducing unintended adolescent pregnancy. LARCs are the most effective contraceptive methods, however, remain significantly underutilized in the United States (U.S.), and particularly among the adolescent population. This project aimed to identify facilitators and barriers to counseling and prescribing adolescents on LARC methods within a southwestern urban Community Health Center (CHC). This project was guided by the Theory of Planned Behavior (TBP) to describe providers' intention to counsel and prescribe LARC methods to adolescents. This project employed a descriptive design and utilized a quantitative survey distributed to selected providers within this CHC. Response rate was approximately 14%. Key findings suggest providers are particularly knowledgeable of LARC methods and recommendations discussed in current contraceptive evidence-based guidelines. Despite this knowledge, the most frequent contraceptive methods prescribing in this CHC are the oral contraceptive pill (OCP) and the injectable (Depo-Provera). Primary barriers to LARC are identified as providers' faulty perceptions of LARC and organizational concerns. Overall, this project was successful in identifying provider-based influences that act as barriers and subsequently limit the prescription of LARC to adolescents. Recommendations are made to enhance providers' LARC counseling and prescribing practices pertaining to 1) how often contraceptive counseling occurs, 2) requirements warranted prior to LARC initiation, and 3) recognizing and addressing providers' flawed perceptions on LARC use in adolescents.

INTRODUCTION

Background Knowledge

Unintended pregnancy remains a crucial public health concern within the United States (U.S.), and is associated with national economic ramifications and maternal and child adverse outcomes (Centers for Disease Control and Prevention [CDC], 2015b). An unintended pregnancy (UIP) is defined as a pregnancy that is not desired or mistimed (CDC, 2015b). Unplanned pregnancy is a core measure of reproductive health within a nation or population of interest (Finer & Zolna, 2016) and emphasizes the obligation for enhanced contraception and family planning efforts (CDC, 2015b). Of all pregnancies in the U.S. 45% are unintended, however, in adolescents, ages 15 to 19, the unintended pregnancy rate remains as high as 82% and constituted the highest unintended pregnancy rate of all age groups in 2006 (Finer, 2011; Finer & Zolna, 2016). Further, the United States has the highest rate of unintended adolescent pregnancy of all industrialized countries (Sedgh et al., 2015).

Unintended pregnancy severely affects the health of individuals and communities, and produces significant social and economic burdens (Sonfield, Hasstet, Kavanugh, & Anderson, 2013). Research has identified that unintended pregnancy contributes to numerous adverse maternal and child outcomes that include, for the mother: lower educational attainment, lower level of career achievement, reduced economic stability, heightened discord with reduced contentment in relationships, and a greater likelihood to experience depression, anxiety and reduced levels of happiness (Sonfield et al., 2013). For the child, significant social and health concerns include the development of mental and behavioral conditions and reduced educational attainment (Sonfield et al., 2013). Unintended pregnancy also generates consequences at the

community and national level. In 2010, U.S. government expenditures, on the direct consequences of UIPs (i.e., births, abortions, miscarriages), amounted to 21 billion dollars (Sonfield & Kost, 2015).

According to the 2011 to 2013 National Survey of Family Growth, 44% of adolescent females, ages 15 to 19, in the U.S. reported to have had sexual intercourse (Martinez & Abma, 2015). Also, the most common methods utilized for pregnancy prevention in adolescent teenagers were reported to be condoms, withdrawal, and the pill; whereas less than 3% of adolescent females utilized a more effective longer acting method (Martinez & Abma, 2015). These common contraceptive methods (e.g., condom, withdrawal, and pill) exhibit high typical failure rates and low continuation rates (Peipert et al., 2011) which subsequently mirror the high rate of unplanned adolescent pregnancies (Martinez & Abma, 2015). Moreover, research suggests that among the unintended adolescent pregnancies, half of individuals fail to utilize any method of contraception and the other half use contraception incorrectly at the time of conception (Coles, Makino, & Stanwood, 2011). An established objective of the CDC's *Healthy People 2020* is to reduce the nation's unintended pregnancy rate by increasing access to more effective contraceptive methods (2016). Thus, strategies to help mitigate the national adolescent unintended pregnancy rate are to improve access to highly effective contraception and enhance the correct and consistent utilization of contraception for those who desire to prevent childbearing (CDC, 2015b).

Family planning strategies that can mitigate UIP rates consist of greater access to and utilization of long-acting reversible contraception, or LARC (CDC, 2015b). LARC is the most effective reversible contraceptive method (Curtis et al., 2016). LARC methods are user-

independent and exhibit failure rates of less than one percent (Curtis et al., 2016).

Comparatively, short-acting methods such as the oral birth control pill and male condom have failure rates of 9% and 18%, respectively, according to the World Health Organization (WHO) Department of Reproductive Health and Research (Curtis et al., 2016). LARC methods consist of the intrauterine devices (IUDs) and subdermal implant (Curtis et al., 2016). There are currently five IUDs accessible in the U.S., one non-hormonal device and four hormone-releasing devices, that are inserted into the woman's uterus to prevent pregnancy (Curtis et al., 2016). ParaGard is the non-hormonal, or copper-containing, device (Curtis et al., 2016). The four hormone-releasing IUDs release varying amounts of levonorgestrel, and are the Mirena (20mcg/day), Skyla (14 mcg/day), Liletta (19 mcg/day) and Kyleena (17.5mcg/day) (Bedsider.org, 2017). The Mirena and Kyleena are approved for five years of use, whereas the Liletta and Skyla are approved for three years of use (Bedsider.org, 2017). The subdermal implant, or Nexplanon, is inserted under the skin of the woman's upper arm and contains 68 mg of etonogestrel to prevent pregnancy (Curtis et al., 2016). The Nexplanon is approved for three years of use (Curtis et al., 2016).

Current evidence-based guidelines endorse LARC use for the adolescent population, regardless of parity status. The American College of Obstetricians and Gynecologists (ACOG) (2012), the American Academy of Pediatrics (AAP) (2014), and the Centers for Disease Control and Prevention (CDC) (Curtis et al., 2016) all recommend LARC as first-line contraceptive methods for nulliparous and parous adolescents. Of note, AAP most recently modified their recommendations to include LARC as first-line therapy in 2014. However, despite these recommendations, LARC usage rates in adolescents is the lowest of all age groups, at only 3%, supporting the notion that significant barriers to adolescent LARC use still exist (Kavanaugh et

al., 2015). As the 2016 U.S. Selected Practice Recommendations for Contraceptive Use encourage the use of LARC in adolescents, it is paramount that providers inform and counsel adolescent patients on the entire spectrum of contraceptive options, and must also collaborate with adolescents to select the most suitable contraceptive method based on individual patient preferences and circumstances (Curtis et al., 2016).

LARC remains underutilized in the U.S., particularly among adolescents (Kavanaugh, Jerman, & Finer, 2015). Nevertheless, emerging research informs us that LARC is not only more effective, but also exhibits greater patient continuation and satisfaction rates, when compared with shorter acting methods. A systematic review of published data on U.S. LARC continuation rates in girls under 25 years of age from 2002 to 2016 found that 84% of participants continued LARC at the 12-month mark following initiation of the method (Diedrich, Klein, & Peipert, 2016), in contrast to non-LARC continuation rates of only 49 to 57% for the same time period (Peipert et al., 2011). Peipert and colleagues (2011) also report enhanced patient satisfaction rates with LARC use. When analyzing patient contraception satisfaction rates, 84% of LARC users versus 53% of non-LARC users were satisfied with their contraceptive method of choice, after one year of use (Peipert et al., 2011). The heightened continuation and patient satisfaction rates, when compared to shorter acting methods, generates promising data for enhanced adolescent acceptance of LARC methods for contraception.

Significant barriers to adolescents receiving LARC exist, and stem from many different influences such as the community, patient, and provider. Research suggests primary care providers in the U.S. fail to offer and even counsel adolescents on LARC (Rubin, Fletcher, Stein, Segall-Gutierrez, & Gold, 2011; Rubin, Fletcher, Stein, Gold, & Segall-Gutierrez, 2010).

Provider based barriers are rooted in knowledge, skill, personal opinions, and bias. Identified primary care provider-based barriers are: outdated knowledge of appropriate LARC candidates, inadequate knowledge of evidence-based guidelines, lack of training in LARC skills (i.e., insertion and removal), inadequate availability of on-site LARC services, and scientifically inaccurate views of utilizing LARC in the adolescent population (Berlan et al., 2017; Pace et al., 2015; Rubin et al., 2013). Further, providers own biases served as barriers as they perceived adolescents to have a lack of maturity to use such a device (Berlan et al., 2017).

Scant research has been conducted to identify providers' knowledge, perceptions and counseling practices surrounding LARC (Berlan et al., 2017). One qualitative study on primary care pediatricians' LARC-related attitudes and beliefs found only a minority of providers' approved of LARC use in the adolescent population and the majority of providers failed to comment on these methods during adolescent contraceptive counseling (Berlan et al., 2017). Family planning and contraceptive care is a basic preventative service that preserves the health of our nation and its' individuals (Pace, Cohen, & Schwarz, 2011), and providers are the gatekeepers to contraceptive care. The Affordable Care Act (ACA), passed in 2010, transformed the U.S. healthcare system by promoting a preventative care model and increasing access to basic preventative care for many citizens (Lathrop & Hodnicki, 2014). This enhanced access to fundamental healthcare warrants a need for a greater number of proficient healthcare professionals to act at the front-lines of care, and Advanced Practice Registered Nurses (APRNs) who hold Doctor of Nursing Practice (DNP) degrees are in prime positions to fulfill this need (Lathrop & Hodnicki, 2014). As the ACA continues to advance patients' access to primary care it becomes critical that all providers, most notably APRNs, are well versed in the field of

contraception, prioritize contraceptive care, and discuss the use of LARC, particularly for adolescents (Pace et al., 2011).

Local Problem

The state of Arizona has a higher unintended pregnancy (UIP) rate, at 51%, when compared to the national average of 45% (The National Campaign to Prevent Teen and Unplanned Pregnancy [The National Campaign], 2016). Arizona ranks 32, out of all 50 states, for having the highest teen pregnancy rate (The National Campaign, 2016) at 56 per 1000 women aged 15 to 19 in 2011 (Kost & Maddow-Zimet, 2016). In contrast, the national average for the same year was 52 per 1000 adolescents (Kost & Maddow-Zimet, 2016). Of the UIPs in Arizona reported in 2010, 61% resulted in birth, 23% in abortion, and 16% in miscarriage (Kost, 2016). The National Campaign reports that in 2010, unplanned pregnancy in Arizona cost taxpayers 240 million dollars (2014), which resulted in Arizona being the eighth most expensive state in the nation for expenditures related to unintended pregnancy (The National Campaign, 2016). According to the Guttmacher Institute, in 2010, the publically funded costs of unintended pregnancy in Arizona was 531 dollars per woman, as compared to the national average of 201 dollars per woman (Sonfield & Kost, 2015). A little over half, or 53%, of unplanned births in Arizona were funded by Medicaid (The National Campaign, 2016). Research is sparse with respect to patient and provider knowledge and views on LARC use in adolescents, specifically within Arizona. To date, there have been few studies that investigated this topic of interest, but were conducted in other areas within the U.S., which may or may not be generalizable to other regions such as Arizona.

This project will be conducted within a Community Health Center (CHC) located in Maricopa County, Arizona entitled Adelante Healthcare. Adelante Healthcare has a total of nine individual service sites located throughout Maricopa County (Adelante Healthcare, n.d.). Community Health Centers (CHCs) are non-profit organizations that provide comprehensive health care for all patients regardless of health insurance status (Arizona Alliance for Community Health Centers [AACHC], 2013). CHCs provide primary and specialty medical, dental, and mental health care with access to additional amenities such as nutritional, behavioral, and pharmaceutical services (AACHC, 2013). CHCs are typically located in areas where access to healthcare is limited, thus these clinics are vital to such disadvantaged communities in need of adequate health care services (AACHC, 2013).

Outside of Adelante Healthcare, adolescents can receive medical care at 10 other Community Health Center organizations within Maricopa County (AACHC, n.d.). These CHC's are identified as the following: Circle the City, Maricopa County Health Care for Homeless, Maricopa Integrated Health System, Horizon Health and Wellness, Mountain Park Health Center, Native Health Center, Neighborhood Outreach Access to Health, Terros, Valle Del Sol, and Wesley Health Center (AACHC, n.d.). Of note, there are only two organizations, with a total of five individual clinics, located throughout Maricopa County that are entitled to Title X funding; these organizations are Planned Parenthood and Wesley Community Health Center (Arizona Family Health Partnership [AFHP], 2017a). Title X clinics provide a unique service to adolescents, as these clinics allow adolescents to receive comprehensive family planning services without requirements such as health insurance, obtaining parental consent, and scheduled (i.e., non-walk in) appointments (AFHP, 2017b).

Purpose

The purpose of this DNP quality improvement initiative is to identify pediatric, family, and obstetric-gynecologic practicing providers' knowledge, perceptions, and views surrounding the prescription of LARC to adolescents which may affect their prescribing practices within a Community Health Center located in Maricopa County, Arizona. The overall aim of this project is to determine providers' knowledge, perceptions or views that act as barriers and/or facilitators to prescribing LARC in the adolescent population. This information can then be used to identify and understand system- and provider-based influences in prescribing LARC, or lack thereof, to adolescents in an attempt to encourage provision of the full-spectrum of contraception options to all adolescent females. Key stakeholders will include pediatric primary care, family primary care, and obstetric-gynecologic providers, adolescent patients, and adolescent family members. Identifying providers' knowledge, perceptions and views will provide the foundation for further studies to address identified barriers to prescribing LARC and will improve LARC provision for adolescents. The long-term goal of enhanced access and utilization of LARC in adolescents through enhanced providers' counseling and prescribing the full spectrum of contraceptive options to adolescents will act to decrease the rates of unintended adolescent pregnancy and the associated detrimental social and economic impacts (Berlan et al., 2017; Diedrich et al., 2016).

Study Question

This project will answer the following question:

1. What are providers' knowledge, perceptions and views of prescribing long-acting reversible contraception (LARC) to adolescents, ages 15 to 19, to prevent unintended pregnancy?

FRAMEWORK AND SYNTHESIS OF EVIDENCE

Theoretical Framework

The theoretical framework that will guide this DNP project is the Theory of Planned Behavior (TPB). The TPB was initially proposed by Ajzen in 1985 and was developed as an extension of Ajzen and Fishbein's Theory of Reasoned Action in 1980 (Ajzen, 1991). The TPB incorporates an additional element unexplored in the Theory of Reasoned Action, or what is identified as perceived behavior control (Ajzen, 1991). The TPB is characterized as a motivational theory that essentially attempts to understand an individual's (or population's) motivation to perform a specific act, behavior, or change (Grol, Bosch, Hulscher, Eccles, & Wensing, 2007). The elemental explanation underlying the TPB is that behavior is a function of beliefs related to that particular behavior, and an individual's beliefs function to influence the intention to engage in that behavior (Ajzen, 1991). There are three associated beliefs that determine intention and subsequently behavior: behavioral beliefs, normative beliefs and control beliefs (Ajzen, 1991). These beliefs lay the foundation for the three essential concepts that underlie the TPB framework: attitudes toward the behavior (behavioral beliefs), social norms regarding the behavior (normative beliefs), and perception of control over the behavior (control beliefs) (Ajzen, 1991).

The central element in the TPB is the individual's *intention* to carry out a particular behavior (Ajzen, 1991), and intention is driven predominately by attitudes, societal norms, and anticipated control over the particular act or behavior (Grol et al., 2007). The TPB states that an individual will be successful in performing a specific behavior so as long as he or she has the appropriate resources and circumstances available, and possesses the intention to execute the

behavior (Ajzen, 1991). The TPB is a theory that attempts to explain human behavior, thus utilizing the TPB framework will permit the DNP student to explore providers' beliefs, perceptions, and views on LARC use in adolescents to help illustrate and predict the influence of these factors which may affect providers' likelihood of prescribing LARC to adolescents.

Concepts

As stated above, the central element surrounding the theory of planned behavior is intention. Intention is influenced by personal *attitudes*, the social context or environment (or the *subjective norm*), and *perceived behavioral control* over the ability to perform a particular behavior (Ajzen, 1991). The three motives of intention (i.e., attitude, norms, and perceived behavioral control) are separate concepts, but are interconnected and influence one another (Ajzen, 1991). These three motivational concepts influence the intention to change or perform a behavior, thus intention represents the willingness and effort of an individual's inclination to perform a particular act or behavior (Ajzen, 1991). The TPB applies to this DNP project as this study will attempt to identify and understand provider's influences in prescribing LARC, or lack thereof, to adolescents.

Attitudes

The first notion of intention is attitude, or the extent to which an individual positively or negatively views and evaluates a specific behavior (Ajzen, 1991). Attitudes arise from personal beliefs of the behavior and their association with anticipated outcomes of the behavior, such as the cost-benefit ratio of performing the behavior (Ajzen, 1991; Grol et al., 2007). A behavior that saves a person time, without added effort, will likely be positively appraised by most individuals (Grol et al., 2007). A belief about a new behavior is formed through linking the behavior to an

already known and valued attribute, thus preconceived ideas and notions form an involuntary attitude toward the behavior (Ajzen, 1991). Positive attitudes concerning the behavior develop if the behavior has beneficial attributes and outcomes, and negative attitudes arise if harmful attributes and outcomes are associated with the behavior (Ajzen, 1991). Thus, providers that view LARC as beneficial for the adolescent might express a favorable attitude in prescribing LARC to adolescent patients, and vice versa.

Subjective Norm

The societal element, or subjective norm, incorporates the social appraisal and societal standards, such as praise or criticism, of the behavior (Ajzen, 1991). For example, if important groups or persons relative to the individual disapprove of prescribing LARC to adolescents, it is more likely that the individual will concur with this belief and disapprove of the behavior as well (Ajzen, 1991). However, this construct also takes into account the individual's desire to comply with societal beliefs, and can vary from person to person (Ajzen, 1991). Essentially, the subjective norm concept multiplies the social norm belief by the individual's motivation to comply with the social norm to generate the magnitude of an individual's approval or disapproval of the behavior (Ajzen, 1991). Thus, if a colleague were to disapprove of prescribing LARC to adolescents and the provider views this colleague with high regard, it seems even less likely that the provider will prescribe LARC to adolescents in order to comply with the social norm.

Perceived Behavioral Control

Perceived behavioral control (PBC) embodies an individual's idea surrounding the simplicity or complexity of performing a particular behavior and, similar to the previous concepts, can change for different behaviors and circumstances (Ajzen, 1991). PBC incorporates

an individual's past experience with the behavior, if any, and the predicted barriers and complications associated with the particular behavior. Thus, a person's confidence in his or her own competence to perform the behavior affects the intention to engage in the behavior. The PBC concept was derived from Bandura's construct of self-efficacy, in that a person will judge oneself on his or her ability to execute a behavior that is needed to manage a situation at hand. In this way, self-efficacy influences thoughts, decisions, actions, effort, and subsequently, intentions and behaviors. A person's greater perceived ability to control the behavior equates to a greater expended effort to accomplish the behavior. For example, the greater confidence that a provider has in counseling adolescents on LARC, the more likely the provider is to persevere in counselling and prescribing LARC to adolescents. However, perceived behavioral control is likely to diminish if the provider has little knowledge on LARC, lacks available resources, or when new skills are required of the provider. Thus, perceived behavioral control has a direct influence over an individual's behaviors (Ajzen, 1991).

The aforementioned concepts work interdependently to predict behavioral intention and performance, and in order to accurately predict behavior, the measures of these concepts must refer to the particular behavior at hand (Ajzen, 1991). For example, in order to predict providers' practices for prescribing LARC to adolescents, one must first assess providers' attitudes, agreeance with social norms, and perceived control of prescribing LARC to adolescents, which shapes providers' overall intention to prescribe LARC to the adolescent population. In general, the TPB framework postulates that a strong intention to perform a behavior is correlated with a favorable attitude toward the behavior, accepted subjective norm, and a greater perceived behavioral control. All three concepts make interdependent and interrelated predictions into the

intention of an individuals' behavior that can vary across behaviors, settings and circumstances. Thus, through analyzing attitudes, social norms, and perceived behavioral control that influence intentions and behaviors, the TPB will successfully and intricately explain providers' knowledge, perceptions and views that may affect their likelihood of prescribing LARC to adolescents (Ajzen, 1991).

Synthesis of Evidence

A literature review was conducted in order to cultivate an understanding of providers' LARC prescribing practices, discover prior research on this issue, and describe the need for improvement that ultimately benefits the population of interest (Zaccagnini & White, 2014). Multiple literature searches were conducted through PubMed and Cumulative Index to Nursing and Allied Health Literature (CINAHL) to acquire an enhanced understanding of providers' knowledge, perceptions, views and attitudes, which influence their LARC prescribing practices and behaviors. Key words utilized in the search were long-acting reversible contraception, LARC, adolescents, counseling, provision of LARC, provider, barriers, knowledge, attitudes, beliefs, perceptions, and prescribing practices. Related words included primary practice, family practice, pediatrics, obstetricians-gynecologists, healthcare provider, intrauterine device, IUD, implant, subdermal implant, bias, and assumptions. Inclusion criteria incorporated articles published within the last 10 years, in the English language, conducted within the United States (U.S.), and included the patient population of interest (females, ages 15 to 19). Additional inclusion criteria included articles involving other staff members (i.e., administrators, educators, nurses, front-line staff) and interventions that attempted to promote provision of LARC.

Articles were excluded if research was conducted outside of the U.S., considered only patient views, or failed to speak to provider-based perceptions, attitudes, beliefs or provision of LARC. Additional articles were identified and obtained through citation searching from reference lists of included papers for relevancy to the proposed study question. A total of 59 articles were found. However, a total of 10 articles were selected based upon their relevancy to this paper's specific study question of interest. These articles were then reviewed and analyzed (Appendix A), with pertinent findings discussed below.

Provider Counseling and Recommendations

Wilson, Strohsnitter, and Baecher-Lind (2013) found that of all contraceptive methods, LARCs, or IUDs and implants, were the least recommended methods for adolescents, with only 10.6% of pediatric providers recommending IUDs and 8.8% recommending the implant. Comparatively, 94% of pediatricians recommended the oral contraceptive pill (OCP) as a first-line method for adolescents (Wilson et al., 2013). Berlan, Pritt, and Norris (2017) found that most primary care pediatricians' counseled adolescent patients on the implant, however, few providers included counseling on the IUD. Swanson, Gossett, and Fournier (2013) investigated general pediatricians' and pediatric residents' beliefs and prescribing practices of LARC, and any differences in either group with respect to practice setting, level of training or gender. Residents, when compared to older physicians, were significantly ($p < .0001$) more likely to consider LARC as appropriate options for adolescents (Swanson et al., 2013).

Lack of Knowledge and Appropriate Candidacy

Murphy, Stoffel, and Nolan (2016) demonstrated significant barriers to counseling adolescents on LARC were providers' lack of knowledge, skill, and confidence in their LARC

counseling and prescribing abilities. Pediatricians, compared to family practice providers and obstetricians-gynecologists, were found to have the most restrictive candidate criteria for LARC and subsequently offered the most limited range of contraceptive options, most notably failing to include LARCs as a practicable option (Rubin, Davis, & McKee, 2013b). Further, Rubin, Campos, and Markens (2013a) found that providers exhibited a paternalistic attitude when counseling adolescents on contraception, and many used overly-strict criteria for determining which patient populations were deemed appropriate IUD candidates.

Kavanaugh, Frohwirth, Jerman, Popkin, and Ethier (2013) found that providers viewed IUDs as unacceptable methods for adolescents as they perceived adolescents to have smaller reproductive anatomy. After educating providers on current evidence-based clinical practice guidelines that omit the need for a pelvic exam and/or other procedures (e.g., Pap, STI, or pregnancy test) prior to LARC insertion, clinicians were still reluctant to eliminate these traditions in routine practice (Kavanaugh et al., 2013). Gabzdyl, Engstrom, and McFarlin (2015) also explored providers' knowledge, attitudes and beliefs about current guidelines in LARC provision, and if their perceptions and prescribing practices would change following an educational intervention. This educational intervention instructed providers on evidence-based guidelines that advise against the need to perform a pelvic examination prior to prescribing certain contraception methods (i.e., birth control pill, subdermal implant), however, many providers were unwilling to change their current practice as they believed this innovation would fail to benefit the patient and upheld personal views that disagreed with the current guidelines (Gabzdyl et al., 2015). When asked what would help providers change their outdated practice, numerous providers acknowledged their absolute reluctance to change and others stated change

would occur only if clinic administrators made these practices a requirement (Gabzdyl et al., 2015).

Behaviors, Medical Risks and Adverse Outcomes

Rubin and colleagues (2013b) qualitative, exploratory interview study describes contraceptive counseling as a behavior that is influenced by many elements, such as knowledge and skill, environmental factors, and attitudes and beliefs. The two largest influential factors regarding the provision of LARC for adolescents were related to providers' beliefs about the consequences of LARC, specifically a greater perceived risk of sexually transmitted infections (STIs) with LARC use, and non-scientific, historically based perceptions inherent in the LARC device itself (Rubin et al., 2013b). Berlan et al. (2017) also confirm that providers hold incorrect perceptions that IUDs place patients at greater risk for STIs and pelvic inflammatory disease (PID).

Kavanaugh et al. (2013) found that providers' attitudes toward LARC use in adolescents was not based on the patient's age (i.e., the actual number), per se, but rather the behaviors associated with adolescent youth. Providers were particularly concerned with their own personal beliefs that LARC use encourages adolescents to have multiple partners and avoid condom use, with a subsequent higher risk of STIs (Kavanaugh et al., 2013). Concerning the adolescent population, providers prioritized STI prevention over pregnancy prevention, as they believed LARCs promoted promiscuity and condom nonuse in this patient population (Rubin et al., 2013a). These findings suggest that providers hold a biased and subjective view of adolescent sexual behavior and perceive adolescents to lack the maturity, autonomy, and responsibility to even be counseled on this contraceptive method (Rubin et al., 2013a).

Providers exhibited personal perceptions that this age group is uncomfortable with the methods to confirm IUD placement (i.e., self-checking for IUD strings within the vaginal vault) (Kavanaugh et al., 2013). These researchers stated providers exhibited a false ideal that adolescents were less tolerant of LARC side effects when compared with older women, thus leading to an unsubstantiated belief that younger females discontinue LARCs at a greater rate than older women (Kavanaugh et al., 2013). Interestingly, the adolescent patients in this study underscored the effectiveness of LARC methods to a greater magnitude than providers did (Kavanaugh et al., 2013). A number of pediatricians (34%) cited perceived fertility concerns as the reason of interest for failing to counsel adolescents on LARC (Wilson et al., 2013). For providers who did not include counseling on LARC methods for adolescents, providers speculate that LARC methods are associated with greater medical risks, heightened risks for STIs, and stimulate future infertility problems (Swanson et al., 2013).

Personal Bias, Religion, Morals and Ethics

Berlan and colleagues (2017) cited numerous aspects that influenced providers' perceptions of IUD use in adolescents, including, but not limited to, a personal disapproval of the device itself, beliefs that adolescents lack the maturity to utilize such a device, and inaccurate beliefs that adolescents are disinterested in IUDs. Murphy and colleagues (2016) cited two fundamental reasons for why providers failed to counsel adolescents on LARC; that adolescents are uninterested in such methods and that insertion of these methods was torturous and emotionally traumatizing for adolescents. Further, providers perceive adolescents and their parents to be most interested in the oral birth control pill for contraception purposes (Berlan et al., 2017).

Hallum-Montes, Middleton, Schlanger, and Romero (2016) found that staff attitudes and beliefs acted as a barrier to implement evidence-based contraceptive care, as there was an overall personal discomfort in addressing contraception with adolescents, particularly among pediatricians. These authors noted that much of this discomfort was derived from providers' religious beliefs as providers located in the southeastern region of the U.S., or the "Bible belt" hold religious beliefs that prevent them to counsel adolescents on contraception (Hallum-Montes et al., 2016, p. 278). Lawrence, Rasinski, Yoon, and Curlin (2011) investigated obstetricians-gynecologists' moral and ethical objections to LARC provision. These authors found that 5% of U.S. providers have a moral or ethical objection to contraceptive counseling, and roughly 7% would not provide at least one contraceptive method, even if the patient specifically requested it (Lawrence et al., 2011). Not surprisingly, the most common method that providers refused to prescribe were the IUD (4.4% participants objected) and the implant (2.1% of participants would not offer) (Lawrence et al., 2011).

Clinic Culture and Colleagues

Clinic culture influenced the scope of LARC provision to adolescents, which varied based upon specialty (Rubin et al., 2013b). Providers more likely to counsel adolescents on LARC were those whose colleagues were supportive of adolescent LARC use (Rubin et al., 2013b). Further, of pediatricians who refused to offer LARC to adolescents did so due to clinical culture, judgment by colleagues, and personal preference to refer to outside specialists (Swanson et al., 2013). Murphy et al. (2016) further confirmed the influence of clinic culture as providers acknowledged that instrumental support from leadership and colleagues would enhance their own provision of LARC to adolescents.

Current State of Knowledge

Strengths

A significant strength of the literature is that all of these studies, with the exception of one, were published within the last five years, indicating a growing interest and concern regarding adolescents lack of access to the full-spectrum of contraception options. This demonstrates that this DNP quality improvement project is timely and urgently essential.

Weaknesses

A significant weakness is that all survey studies introduce the potential for responder bias as providers with considerable interest in adolescent contraception are more likely to participate and respond (Gabzdyl et al., 2015; Lawrence et al., 2011; Swanson et al., 2013; Wilson et al., 2013).

Gaps in the Literature

The review of the literature sheds light on how limited the evidence is with regard to providers' knowledge, attitudes, perceptions, and beliefs surrounding the provision of LARC to the adolescent population. Of the studies presented above, only two included the viewpoints of advanced-practice registered nurses (APRNs). Further, no studies were found that specifically examined the beliefs of providers within Arizona. Although limited studies exist, the insight acquired through analyzing the above studies is invaluable in attempting to understand and interpret how provider-based perceptions and views influence their LARC prescribing practices to adolescents. Despite these insightful studies, a significant gap in the literature remains and further studies are urgently required that may help to elucidate Arizona-based providers' beliefs that underlie the provision of LARC. This information will ultimately be used to identify

providers' conscious and unconscious bias, assumptions, and beliefs surrounding adolescent LARC provision and will attempt to address these restricted prescribing practices in order to encourage provision of the full-spectrum of contraception options, and particularly LARCs, to all adolescents. In conclusion, this review of the literature supplements the argument and rationale, and supports the urgent need, for this DNP quality improvement project.

METHODS

Design

This quality improvement initiative employed a descriptive design utilizing a quantitative survey that was distributed to providers to collect responses and feedback. The survey was composed primarily of structured questions, with a few short answer responses. A quantitative descriptive design was appropriate for this project's purpose as this methodology is considered observational and nonexperimental, and such methods are utilized to assess attitudes and behaviors of a specific population (i.e., providers) that can be used to drive practice improvements (Rouen, 2017). It is of critical importance that the design, or methodological approach, of the project was congruent with the overall purpose and goals of the project, as this ensures the accuracy and integrity of the DNP project and its' associated outcomes and results (Rouen, 2017). To guide successful compilation of appropriate questions within the survey, previous related research was evaluated and synthesized, and the Theory of Planned Behavior framework acted as the backbone to create the structure of the survey.

Ethical Considerations

To adequately protect human subjects, three fundamental ethical principles, respect for persons, beneficence, and justice, were addressed within this DNP project (United States

Department of Health and Human Services [HHS], 2016). This project instilled respect for persons through treating study participants (i.e., providers) as autonomous beings (HHS, 2016). Providers were aware that their participation was voluntary, thus they were allowed to refuse to participate or withdraw from the study at any time throughout the project period (HHS, 2016).

Beneficence encompasses that research participants are protected from harm, and their well-being is secured (HHS, 2016). This DNP project promoted beneficence by ensuring to do no harm, maximize benefits, while minimizing harm to all individualizes involved in the study (HHS, 2016). Providers were aware that their responses to survey questions were completely anonymous, so as to avoid any social repercussions from colleagues and team members, and their responses would never be used against them (HHS, 2016). Further, only aggregate data was shared back to the clinic staff. Justice involves participants right to fair treatment and privacy (Polit & Beck, 2012). All clinicians who provide care for adolescents were invited to participate in this project. This project enforced justice as those who refused to participate were treated fairly and in a non-prejudicial manner (Polit & Beck, 2012). Further, the greatest efforts to promote privacy were included in this project as all survey responses were de-identified and anonymous. Again, only aggregate data findings were shared.

As a quality improvement project, this project was determined to be exempt from Institutional Review Board (IRB) purview per the University of Arizona's Human Subjects Protection Program. Further, approval from the three participating departments (i.e., Family, Pediatrics, Ob/Gyn) within Adelante was obtained prior to project start (Appendix B). Recruited providers were aware of obtained approval from Adelante and IRB purview (Appendix C) prior to initiation of the project.

Setting

The setting of this project included the Adelante Healthcare system. Adelante Healthcare is a Community Health Center (CHC), or a Federally Qualified Health Center, that has nine individual clinics located within Maricopa County, in the southwestern region of the state of Arizona. This study was conducted at all nine satellite clinics within Maricopa County. All but two satellite clinics are located in a health professional shortage area (HPSA) and/or medically underserved area (MUA) (Health Resources and Services Administration [HRSA], n.d.). Clinics offer a range of primary care and preventative services for patients of all ages, including family medicine and internal medicine, pediatrics, women's health, and urgent care. Patients have access to additional amenities such as comprehensive dental, nutritional, integrated and specialty behavioral health, WIC (Women, Infants, and Children) Program, exercise and wellness programs, and on-site laboratory and pharmaceutical services. Clinics provide care to predominantly underserved patients and families across Maricopa County who have limited or lack of access to health insurance. The majority of patients seeking care from these clinics are enrolled in Arizona's Medicaid program, also known as Arizona Health Care Cost Containment System (AHCCCS).

Population estimates from July 2016 report a little over four million people inhabit Maricopa County (Az.gov, n.d.). Whites comprised the majority of the population (56%), followed by Hispanics/Latinos (31%), African Americans (6%), Asian Americans (4%), and American Indian/Native Americans (3%) (United States Census Bureau, 2016). Persons under 18 years of age comprise about one-fourth of the population (Arizona Health Matters, 2017b). In 2015, the median household income for Maricopa County was approximately \$55,000 dollars

with a little over 12% of families living below the poverty level (Arizona Health Matters, 2017a; Arizona Health Matters, 2017b). Within Maricopa County in 2015, the rate of infants born to mothers with less than a high school education was almost 19% and the teen birth rate was 25.5 live births per 1,000 females aged 15 to 19, compared to overall U.S. values of 15% and 22.3 live birth rate, respectively (Arizona Health Matters, 2017a). The number of single-parent households continues to rise, at 35% in 2015 (Arizona Health Matters, 2017a).

Teen pregnancy prevention has been identified as a health priority in Maricopa County (Arizona Department of Health Services [AZDHS], n.d.). The proportion of teen births paid for by AHCCCS increased 6% from 2002 for adolescent mothers 19 years of age and younger (Arizona Department of Health Services. (AZDHS, n.d.). In 2012, Hispanic/Latino female adolescents accounted for 52% of unplanned teen pregnancies, whereas White non-Hispanics accounted for 23%, and African American, Asian/Pacific Islander, and American Indians combined accounted for 16% of unplanned teen pregnancies (AZDHS, n.d.). Adelante clinic staff are multicultural and multilingual, and provide affordable health care for patients without adequate health care coverage (Adelante Healthcare, n.d.). Therefore, it is expected that Adelante patients and the surrounding community have limited access to adequate health care coverage and services, and thus are more likely to suffer from significant health disparities such as increased risk for unintended adolescent pregnancy.

Participants

The participants in this project included providers at all nine Adelante Healthcare clinic sites that specialize in Family medicine, Pediatrics, and Obstetrics-Gynecology (Ob/Gyn). Within these three departments, all types of providers were recruited, including Physicians

(MDs/DOs), Nurse Practitioners (NPs), and Physician Assistants (PAs). Specifically, potential family medicine provider participants included 12 MDs/DOs, 12 NPs and one PA. Potential pediatric providers included 12 MDs/DOs and one NP. Potential Ob/Gyn specialists included 10 MDs/DOs and three NPs. Further inclusion criteria were a) providers are either part-time or full-time employees, b) provide care to female patients between the ages of 15 and 19, and c) see patients for well-child exams, annual/yearly visits, sports physicals, or episodic visits. There were a total of 51 providers at Adelante Healthcare that met the above inclusion criteria. This project had a target completion rate goal of 30%, or approximately 15 providers.

Data Collection

The tool for data collection was a survey, or a self-administered questionnaire (SAQ). A self-administered questionnaire is a type of survey that collects data without the use of direct communication, such as through a telephone or face-to-face interview (University of Wisconsin-Madison, 2010). The survey is a self-reported questionnaire that allows participants to complete the instrument themselves, through either paper or online format (Polit & Beck, 2012). The survey employed in this study was a web-based, online survey sent via participants' (providers') work e-mail addresses by way of the Chair of each department within Adelante. A software program, Qualtrics, was utilized to create the survey and for data collection purposes. The survey utilized original questions created by the DNP student, committee Chair, and two other committee members. Questions for the survey were influenced from current evidence-based guidelines for contraceptive care and with regard for obtaining providers' views on prescribing LARC to adolescents. Content validity of the survey tool was conducted by committee members. Please refer to Appendix F for the complete survey tool.

A purposive sampling strategy, or selecting the most suitable providers to meet the objective, as participants was utilized to obtain the projects sample of participants (Polit & Beck, 2012). All 51 identified providers were invited to complete the survey. To recruit participants, a five-minute introduction to the survey was completed via conference call. The DNP student was scheduled on the agenda of a quarterly medical staff team meeting on a mutually agreed upon time, for the purposes of introducing the survey and verbally reviewing the following: who the student is, purpose of the DNP project, risks and benefits of participation in the study, how to participate, and only aggregate data will be shared back to the clinic.

The email disclosure agreement, with a link to the survey embedded in the email, was distributed to the three department Chairs from the DNP student. The department Chairs then forwarded the disclosure agreement and survey link email to all 51 providers via their work email addresses. This email included a disclosure agreement that discussed the purpose of the project, the risks and benefits of participation, confirmation that the study was given both approvals from Adelante and IRB purview, and the mechanism for how providers are to participate (Appendix D). The email explicitly stated that by clicking on the link to the survey provided in the email the individual is granting his or her consent to participate in the DNP project.

The questions, or items, incorporated into the survey included demographic, closed-ended, and open-ended questions. Closed-ended questions are items that offer response options, and participants must select an answer from a range of predetermined responses (Polit & Beck, 2012). Closed-ended questions in this survey included dichotomous, multiple-choice, rank-order, and select all that apply type questions (Polit & Beck, 2012). On the other hand, open-ended

questions permit participants to respond in their own words, such as in a narrative or written reply (Polit & Beck, 2012). The survey included a select few open-ended questions that attempted to gauge what providers deem as appropriate contraceptive options for adolescent females. Further, open-ended questions probed into what resources providers may find helpful to assist in prescribing LARC to adolescents, if any. An additional comments section, utilizing a free text box, was available for providers to note any additional comments or concerns they may have regarding the project or topic of interest. In total, the survey was comprised of 24 structured questions, three open-ended questions, and one additional comments textbox. Lastly, the final page of the survey offered appreciation for provider participation and included links to current evidence-based practice guidelines should the provider wish to obtain more information on contraceptive care in the adolescent population.

The process for data collection included an introduction, disclosure and survey distribution via email, weekly reminders to complete the survey via email, followed by conclusion of the study. The survey was distributed approximately one week after the introduction via conference call. Weekly reminder emails at the end of weeks 1 and 2 were a replication of the original disclosing email, with an additional sentence offering gratitude to those providers who already completed the survey (Appendix E). Data collection was conducted over a three-week period, and after three-weeks, the project was considered closed.

Data Analysis

This project utilized Qualtrics software via the University of Arizona's license for the purposes of data analyses. Quantitative descriptive statistics were utilized for the analyses of all questions within this project. Descriptive analyses were appropriate for this project design as

they are used to describe and synthesize data, and assist in comprehending quantitative data (Polit & Beck, 2012). Rather than simply providing numerical data, descriptive statistics assist the DNP student in communicating information about the study sample and outcomes to the reader (Polit & Beck, 2012). Nominal measurement, or assigning numbers in order to classify data, was used to analyze demographic data (Polit & Beck, 2012). The methods used to analyze question-specific data were measures of central tendency (i.e. mean, median, mode) and variation (i.e., range and standard deviation) (Polit & Beck, 2012). Charts and graphs of descriptive analyses were included for visual representation of aggregate data (Polit & Beck, 2012).

RESULTS

Sample Characteristics

A total of seven participants completed the survey. However, it was determined that one participant did not meet this project's inclusion criterion and was excluded from further analysis. Thus, data analyses reflect results obtained from the six participants who met the above inclusion criteria. Demographic information collected about participants included their specialty, title or role, the number of years in practice, and the number of adolescent patients (ages 15 to 19) they provide care for per week (Table 1).

TABLE 1. *Demographics*

Characteristics	Specialty			Totals
	Family Medicine n=4	Pediatrics n=2	Ob/Gyn n=0	
<i>Title</i>				
Physician	3	1	0	n=3
NP	2	1	0	n=3
PA	0	0	0	n=0
<i>Years in Practice</i>				
<5	2	0	0	n=2
5 to 9	0	0	0	n=0
10 to 14	1	2	0	n=3
15 to 20	1	0	0	n=1
>20	1	0	0	n=0
<i>Number of adolescent pts seen per week</i>				
1 to 10	1	0	0	n=1
11 to 20	3	1	0	n=4
21 to 30	0	0	0	n=0
31 to 40	0	1	0	n=1
>40	0	0	0	n=0

Respondents in this project were primarily Physicians (n=3) and Nurse Practitioners (NPs) (n=3). Respondent specialties included family medicine (n=4) and pediatrics (n=2). Thus, no Physician Assistants (PAs) or providers from the obstetric-gynecologic department participated in this project. The majority of respondents have been practicing for 10 to 15 years, closely followed by providers with less than five years of clinical experience. There was one respondent with 15 to 20 years of experience. The majority of respondents reportedly provide care to 11 to 20 adolescent patients per week. When asked where participants prefer to obtain medical continuing education and information from, all respondents selected journal articles, and all but one participant selected medical staff (i.e., in person) meetings and colleagues. Obtaining continuing education from online webinars and email blasts represented the third and fourth

preferred methods. Lastly, skills and hands-on training and online podcasts were the least preferred methods for the purposes of obtaining continuing medical education and information (Figure 1).

Q4 - Where do you prefer to obtain continuing medical education/information? [Select all that apply].

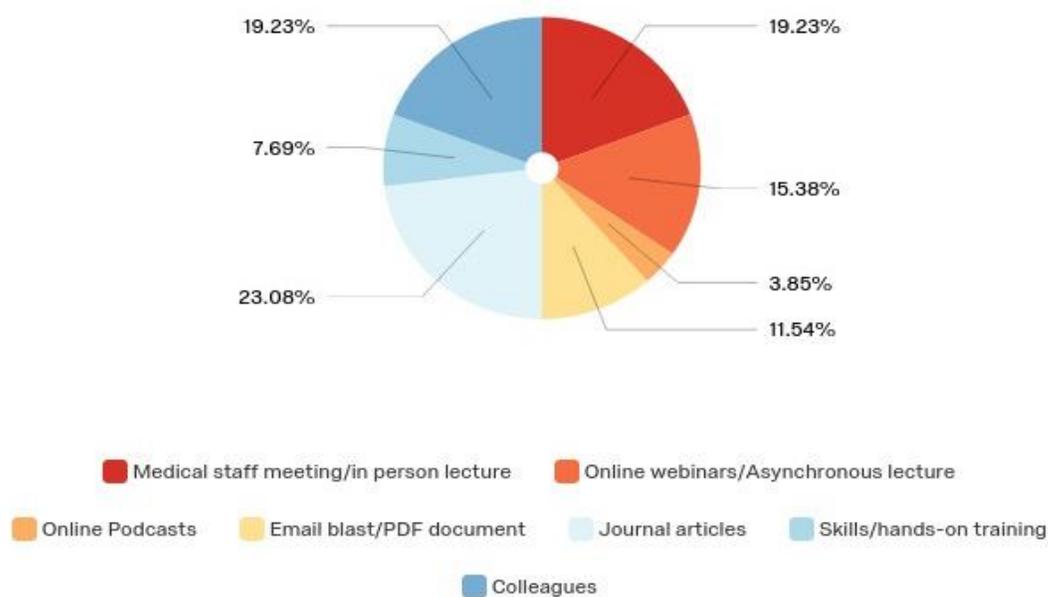


FIGURE 1. Format Preference for Obtaining Continuing Education.

Contraceptive Practices

When asked how often participants discuss contraception with an adolescent female patient, most respondents selected with every well-child or annual exam. The next most frequent situation when contraception is discussed was with every patient encounter. Participants were asked to categorize contraceptive methods they currently counsel on and recommend for a nulliparous, healthy female adolescent patient (Figure 2).

Q7. Contraception recommended vs. NOT recommended.

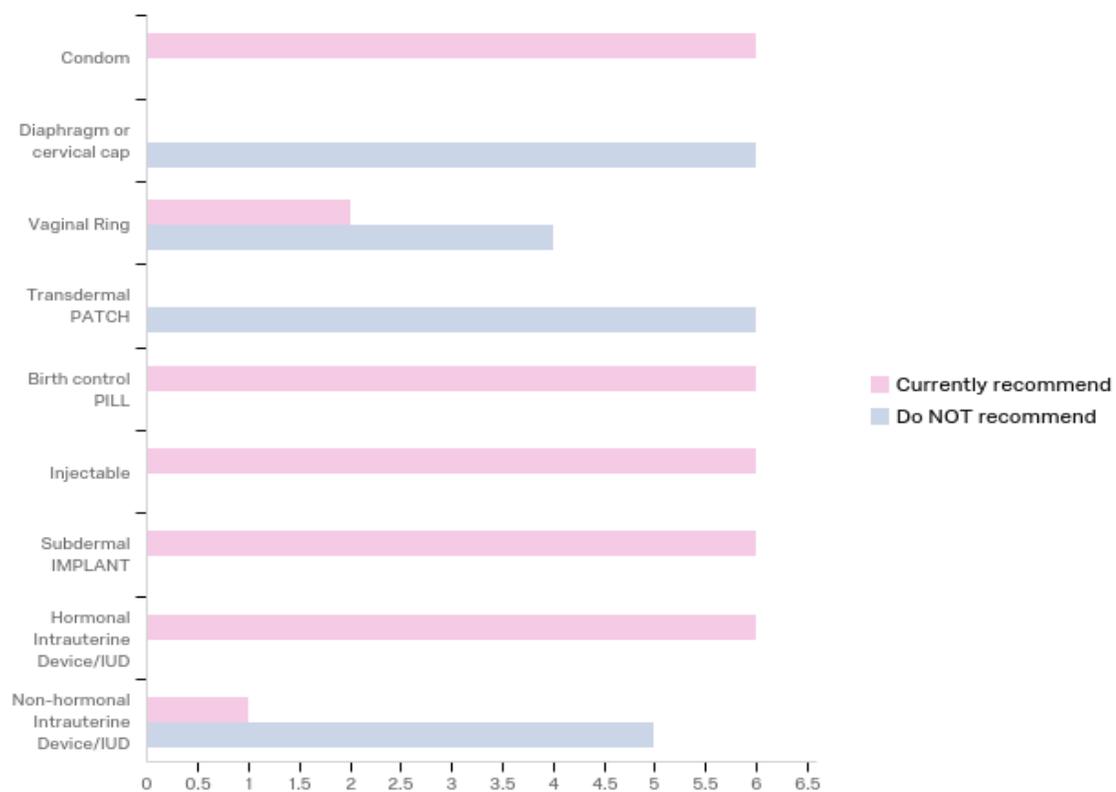


FIGURE 2. Contraceptive Methods Recommended vs. NOT Recommended.

Available options were the condom, diaphragm/cervical cap, vaginal ring, transdermal patch, OCP, injectable, subdermal implant, hormonal IUD, and non-hormonal IUD. All participants recommend the condom, OCP, injectable, subdermal implant and hormonal IUD. Two participants recommend the vaginal ring and only one participant recommends the non-hormonal IUD. When asked what methods they do NOT recommend, all participants selected the diaphragm/cervical cap and the transdermal patch. Of note, five participants do not recommend the non-hormonal IUD for adolescents, and four participants do not recommend the vaginal ring. Participants were then asked to rank, on a scale of 1 to 6, the most common contraceptive method they currently prescribe to nulliparous, healthy adolescent females. Five respondents

ranked OCP and the injectable as their most common and second most common method prescribed, respectively. One participant, a pediatric physician, ranked the injectable as first-line, followed by the subdermal implant. Notably, pediatric providers were the least likely to prescribe an IUD as a preferred method of contraception (Table 2).

TABLE 2. *Current Contraceptives Prescribed According to Specialty*

Family Medicine						
Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
Oral contraceptive PILL	1	1	1	0	0	4
Injectable	2	2	2	0	0	4
Subdermal implant	3	4	3	0	0	4
Hormonal intrauterine device/IUD	4	5	4	0	0	4
Condom	3	5	5	1	1	4
Non-hormonal intrauterine device/IUD	6	6	6	0	0	4

Pediatrics						
Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
Oral contraceptive PILL	1	3	2	1	1	2
Injectable	1	2	2	1	0	2
Subdermal implant	2	4	3	1	1	2
Condom	3	6	5	2	2	2
Hormonal intrauterine device/IUD	4	5	5	1	0	2
Non-hormonal intrauterine device/IUD	5	6	6	1	0	2

Knowledge

When asked if current evidence-based guidelines recommend LARC, or both subdermal implant and IUD, as first-line contraceptive methods for nulliparous adolescents, all participants correctly reported that this was true. Participants were asked what tests are needed prior to IUD insertion for a healthy, nulliparous, never-sexually active adolescent. All participants selected a bimanual exam, cervical inspection and STI screening were required, however a Papanicolaou (Pap) smear was not. Of note, all participants selected STI screening was required prior to

subdermal implant insertion in a never sexually active adolescent, however, bimanual exam, cervical inspection, and Pap smear were not required. Next, all participants correctly selected that same-day IUD insertion is appropriate for a healthy, non-symptomatic, non-pregnant sexually active adolescent if STI screening is current. No participant selected that an additional STI screening is necessary prior to IUD insertion. Further, all participants correctly identified that a female patient does not need to experience childbirth before considering an IUD as an appropriate method of contraception.

Perceptions

When asked what concerns providers have when prescribing the OCP for female adolescents, participants identified side effects and patient noncompliance and subsequent risk of pregnancy as their primary concerns. When considering the subdermal implant, all participants selected side effects as their primary concern. Other concerns identified with the implant were encouraging condom non-use, medical risks with insertion/removal of the device, and not comfortable with prescribing without parental consent (Figure 3).

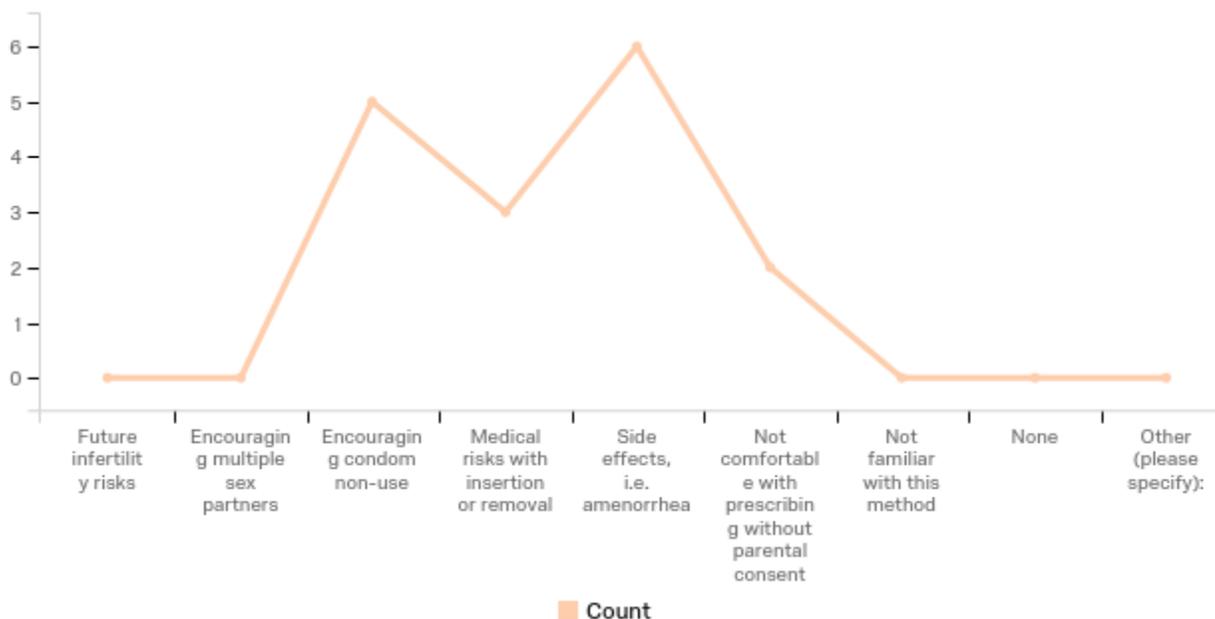


FIGURE 3. Participant Concerns with the Subdermal Implant.

No participant selected future infertility risks nor encouraging multiple sex partners as concerns associated with the implant. When considering the IUD, all participants again selected side effects as their primary concern. Additional concerns identified, organized by frequency, with IUD use were encouraging condom non-use, medical risks with device insertion/removal, not comfortable prescribing without parental consent, and future infertility risks (Figure 4).

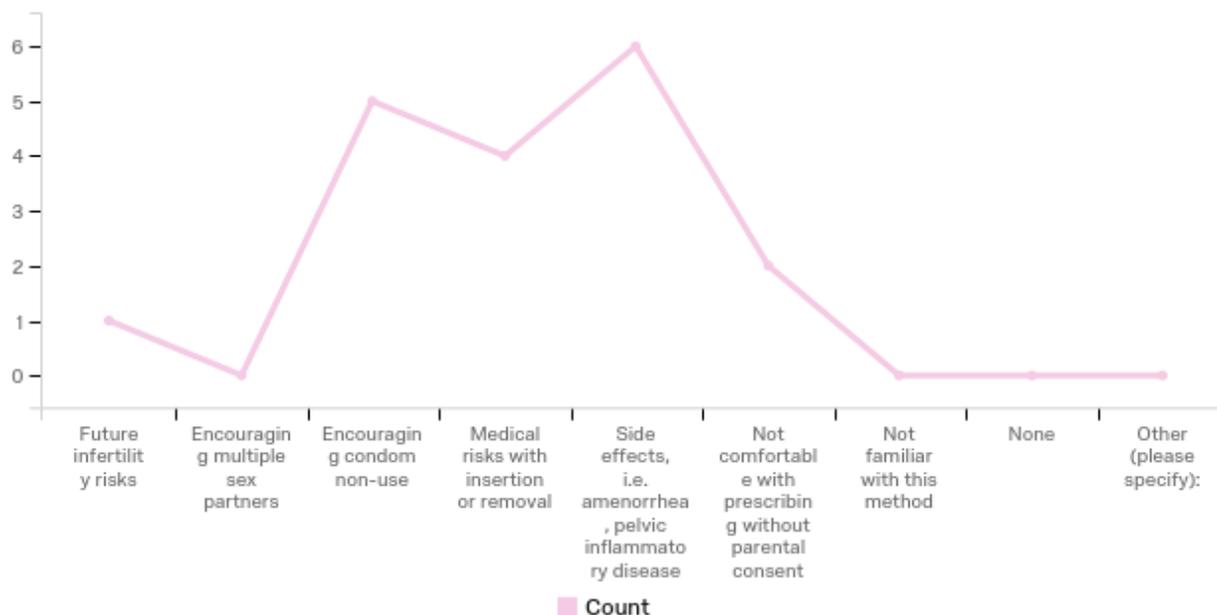


FIGURE 4. Participant Concerns with the Intrauterine Device/IUD.

With regard to clinic environment, all participants reported that their colleagues support the use of both the subdermal implant and the IUD in adolescent patients. Providers were then questioned as to what issues they have observed when considering prescribing an IUD or implant to a healthy nulliparous, never sexually active adolescent (Figure 5).

Q18. What issues have you observed when considering prescribing an intrauterine device or subdermal implant to a healthy nulliparous, never sexually active adolescent? [Select all that apply].

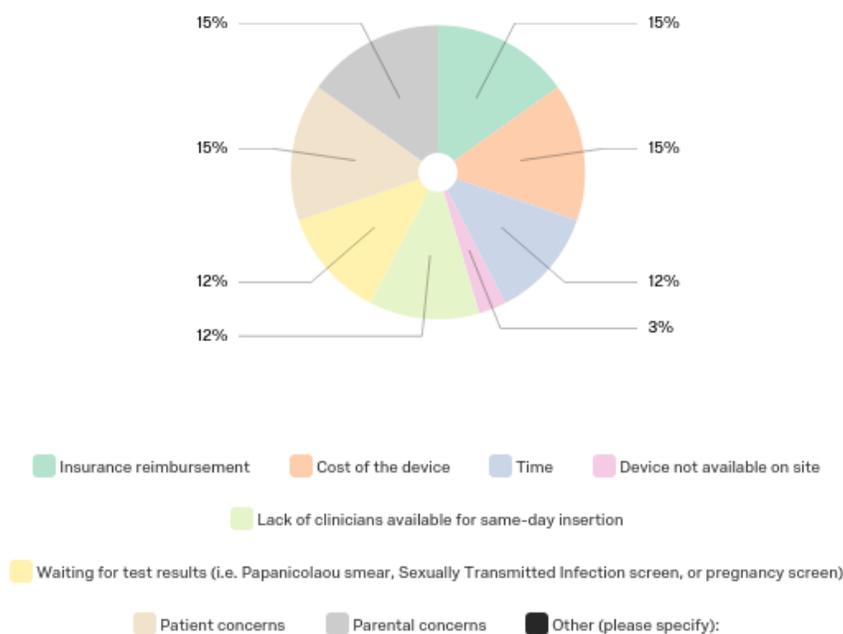


FIGURE 5. Issues Observed When Prescribing IUD and/or Implant.

The most common issues identified were insurance reimbursement, cost of the device itself, patient concerns, and parental concerns. Other, less frequent, concerns were time, waiting for test results (i.e., Pap smear, STI testing, or pregnancy screening), and lack of clinicians available for same-day insertion. The least frequent concern, which only one participant selected, was that the device was not available on-site.

Views

If a healthy, nulliparous adolescent scheduled an office visit to discuss contraception, five participants reported they would counsel her on both the subdermal implant and IUD. One participant, a pediatric physician, reported he/she would counsel on the subdermal implant only.

When participants were asked why they would not counsel an adolescent on the IUD specifically, respondents were concerned with an increased risk of contracting STIs, promoting unprotected intercourse, traumatic experience with device insertion, not having the appropriate skills to insert the device, and that the IUD is not a common method prescribed in their department (Figure 6).

Q17. Please identify why you do NOT counsel adolescents on the intrauterine device/IUD. [Select all that apply].

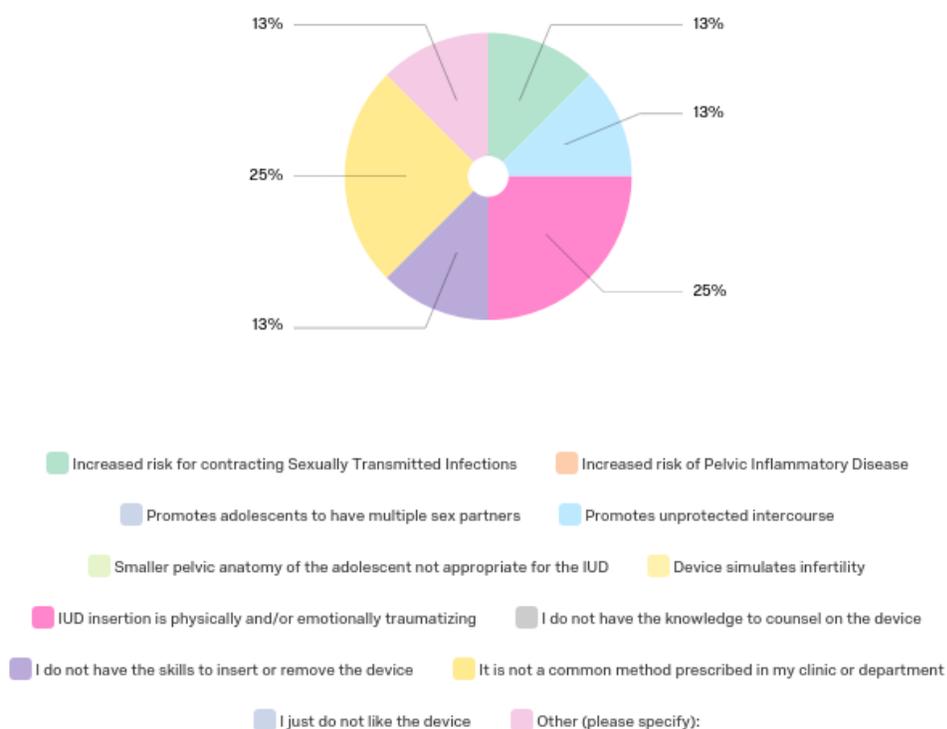


FIGURE 6. Reasons for Not Counseling on the IUD

Of note, one respondent selected “other” and stated that he/she will refer to a specialist (i.e., Ob/Gyn) for counseling and prescription of the IUD. Further, participants who were reportedly concerned that IUD insertion resulted in a physically and/or emotionally traumatic

experience for the adolescent patient were identified as physicians. No NP selected this response. Further, pediatric providers were the only respondents to report that the IUD is not a common method prescribed in his/her department. All participants disagreed with the notion that preventing STIs was more important than preventing pregnancy in the adolescent population.

Intention

Providers were questioned if their likelihood and intention to prescribe LARC to a healthy nulliparous adolescent would be influenced if current evidenced based guidelines, endorsed by ACOG, AAP, and CDC, recommend LARC as first-line contraceptive methods for adolescents. Five participants selected yes, this would in fact increase their likelihood and intent to counsel and prescribe LARC to adolescents. However, one participant selected that “maybe” recommendations from evidence-based guidelines would influence his/her intention to prescribe LARC (Figure 7).

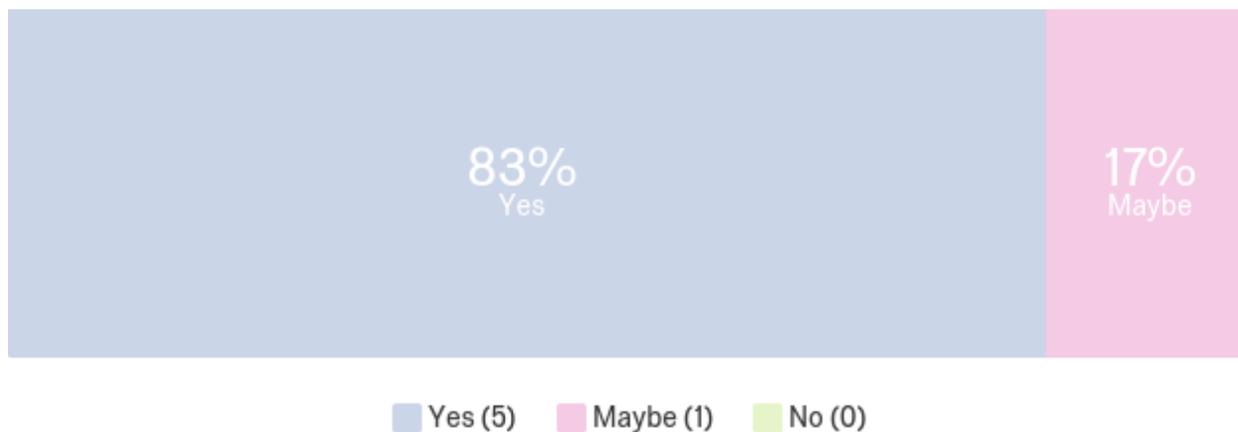


FIGURE 7. Intent to Prescribe LARC Influenced by Current Guidelines.

Open-Ended Responses

Participants were asked to describe a patient they consider to be an appropriate candidate for a LARC method. Participants responded with any female who is, or may become sexually active, and has had menarche and is premenopausal. Additional criteria were noted to be normal anatomy (i.e., cervix, uterus), negative STI screening, no PID, and no significant comorbidities. Further, patient preference was accounted for as described as someone who “is willing” to be prescribed this method. Lastly, one respondent reported appropriate criteria is a patient who does not desire pregnancy for a 3 to 5-year time period, depending on the specific device selected. Participants were then asked to describe a patient they consider NOT to be an appropriate candidate for a LARC method. One pediatric physician practicing for 10 or more years stated a consult with specialist is needed if the patient has a female hormone disorder, bleeding/clotting disorder, or mother with hormone dependent breast cancer. A family medicine NP with less than five years of experience stated those with a history of complication with the device, undiagnosed pelvic pain, or pelvic inflammatory disease are contraindications for LARC use. A physician specializing in family medicine with 15 or more years of experience reported patient preference ought to be considered when determining if LARC is an appropriate method or not.

Lastly, participants were kindly asked to list any resources they may find helpful to assist with counseling and prescribing LARC methods to female adolescent patients. A pediatric physician reported that he/she is certified in Nexplanon insertion/removal, but handouts on IUDs would be beneficial. Additional comments noted were pictures to show the patient when counseling, and a comprehensive patient handout that discusses the specifics of multiple contraceptive options was requested. Finally, a free text box was available for participants to

note any comments and/or suggestions. Surprisingly, one pediatric physician noted the Nexplanon is his/her preferred method of contraception for adolescent females. This provider performs 4 to 6 Nexplanon implants per year, but has to refer many patients to the Ob/Gyn department as his/her schedule is “extremely full”. This provider further notes that he/she is unable to perform as many Nexplanons as she would like. One pediatric NP notes that if a patient desires a LARC method, he/she typically refers patients out to a specialist for consultation and subsequent initiation due to lack of time and appropriate training.

DISCUSSION

The overall purpose of this DNP quality improvement project was to identify and explore provider-based factors, or providers’ knowledge, perceptions and views that may influence and subsequently affect LARC prescribing practices relevant to the prevention of unintended adolescent pregnancy within this specific organization. The overall aims of this DNP project were to identify barriers and facilitators to LARC counseling and prescribing practices, in order to enhance adolescents access to more effective contraceptive methods and ensure adolescents are offered the full spectrum of contraceptive options within this CHC. This will permit shared-decision making between provider and patient to assure the patient selects the most appropriate contraceptive method based on patient specific characteristics and patient preference.

Following project completion, data results and analysis successfully answered this DNP project’s study question, or:

1. What are providers’ knowledge, perceptions and views of prescribing long-acting reversible contraception (LARC) to adolescents, ages 15 to 19, to prevent unintended pregnancy?

Outcomes

The outcome measures for this quality improvement project were to explore providers' (a) knowledge of LARC methods and current evidence-based contraceptive guidelines, (b) perceptions surrounding the use of LARC in adolescents respective to clinic environment and culture, and (c) personal views and bias regarding the prescription of LARC to female adolescent patients. These outcome measures support the notion that providers within this organization are relatively well informed and knowledgeable of LARC methods and current evidence-based contraceptive guidelines, however, certain barriers remain. Significant barriers identified and described below primarily pertain to 1) providers' flawed perceptions of LARC, 2) providers' biased views of LARC methods, and 3) organizational processes and resources that limit the prescription of LARC methods to adolescents. As this project's study design was a quality improvement initiative, data analysis concluded in the ability to identify actual needs of this CHC in order to improve upon LARC counseling and prescribing practices to their adolescent patients.

Contraceptive Practices

Overall, results from this project determined that the most common contraceptive methods participants prescribe for adolescents are the OCP and injectable. Of providers, 83% ranked OCP as their preferred prescribed method for adolescents, and the injectable as their second most frequently prescribed method. Comparatively, one respondent, identified as a pediatric physician, selected the injectable as his/her top prescribed method, followed by the subdermal implant as the second most frequently prescribed method. Overall, participants ranked the subdermal implant and hormonal IUD as their third and fourth most prescribed method,

respectively. Condoms were ranked fifth, and thus not frequently recommended by participants. This may reflect recommended purpose as contraception, rather than for STI risk reduction. Importantly, the non-hormonal IUD was the least frequently prescribed method for all participants. Research conducted within the U.S. informs us that the most frequently utilized contraceptive methods for adolescents are the OCP and condoms (Martinez & Abma, 2015; Peipert et al., 2011). Similarly, research identifies LARC as the least frequent methods recommended, discussed, and thus offered, to adolescents (Wilson et al., 2013; Berlan et al., 2017). Similar to these findings, pediatric providers within this project rated both IUDs (i.e., hormonal and non-hormonal) as their least prescribed methods for contraception. However, family medicine providers in this project preferred subdermal implant and hormonal IUD use over condom use. It should be noted that five participants do not recommend utilization of the non-hormonal IUD (or ParaGard) for adolescents.

Interestingly, the subdermal implant was the third most frequently prescribed method in this study. Similar to Berlan and colleagues (2017), the data from this project demonstrate that when providers do counsel adolescents on LARC methods, they are more likely to recommend the subdermal implant, in contrast to an IUD. When controlling for other factors, methods most commonly prescribed for adolescents did not differ based on providers' years in practice. In contrast, previous research has found that providers with more clinical experience are least likely to recommend LARC methods (Swanson et al., 2013). Project data analysis demonstrates that when a patient selects an IUD for contraception, it is common protocol within this organization to refer to specialist (i.e., Ob/Gyn) providers for consultation, insertion/removal, and management of the IUD device. However, a select few pediatric and family practice providers

are certified in implant (i.e., Nexplanon) insertion and removal. Increasing certification may positively impact insertion rates, given potential barriers for patients to return for further follow-up or follow-up with a new provider.

Participants in this project most often discuss contraception with adolescents at every well-child annual examination, closely followed with every patient encounter regardless of presenting complaint. Addressing contraception during annual visits only acts as a barrier to LARC and may limit adolescents' access to these methods. In order to improve contraceptive counseling and prescribing practices, it would behoove providers to facilitate contraceptive counseling with every patient encounter in order to enhance adolescents' uptake of contraception. Leadership at this CHC could institute organizational policies that require and encourage providers to discuss contraception at each and every visit in order to enhance patients' access to contraception, and improve contraceptive counseling and patient outcomes.

Knowledge

In general, participants in this project demonstrated superior knowledge of LARC methods and relevant contraceptive evidence-based guidelines. One potential barrier is the erroneous requirement for patients to complete STI testing, and thus obtain results, prior to LARC device initiation.

Facilitators

All participants were aware that LARC methods are considered first-line contraceptive methods for female adolescents, regardless of parity status, as per current evidence-based guidelines (Curtis et al., 2016). Similarly, all participants disagreed that a female must experience childbirth before considering prescription of a LARC method. When asked what tests

are required prior to IUD insertion in a healthy, nulliparous, never sexually adolescent, all participants correctly identified a bimanual exam and cervical inspection are required, whereas a Pap smear is not to be performed (Curtis et al., 2016). Further, if a healthy, non-symptomatic, non-pregnant sexually active adolescent whose STI screening was up to date presented for IUD insertion, all participants responded that same-day IUD insertion was recommended, and no additional STI screening is warranted. This corresponds to current guidelines (Curtis et al., 2016).

Barriers

One misconception identified, thus acts as a barrier to adolescent LARC access within this CHC, was that respondents stated STI testing was required prior to both IUD and subdermal implant initiation in a never sexually active adolescent. Current guidelines state that among healthy females, no examinations or tests are required prior to initiation of the implant (Curtis et al., 2016). Also, there is no restriction on initiation or continued use of the subdermal implant in patients with a current STI, vaginitis, or other factors related to STIs, as use of the implant is considered safe with any of these conditions (CDC, 2017; Curtis et al., 2016). Further, a pelvic examination is not necessarily prior to implant initiation, as the implant is inserted into the upper arm, thus this test would not detect a condition for which implant use would be considered unsafe (Curtis et al., 2016). Current guidelines also state that if STI screening is up to date, an additional STI screen prior to IUD insertion is not necessary (Curtis et al., 2016). However, STI testing can be performed at the time of insertion if STI screening is not current, or if the patient is considered high risk (Curtis et al., 2016). Thus, waiting for STI test results is not necessary prior to LARC initiation and insertion, and thus acts as a barrier to LARC access. Further, requiring

STI testing for an adolescent prior to implant initiation acts as a barrier to LARC access as the erroneous requirement for a pelvic examination may deter the adolescent from selecting this method. To overcome this barrier, organizational protocols can be developed that quickly remind providers what prerequisites are required, specifically with regard to STI screening/testing, for each contraceptive option prior to initiation.

Perceptions

Clinic culture influences providers decision-making processes, and acts as a facilitator to LARC counseling. Contrary, providers' flawed perceptions and concerns associated with adolescent LARC use may limit the prescription of LARC.

Facilitators

All participants responded that their colleagues support the use of LARC, both the subdermal implant and IUD, in adolescent patients. The literature shows clinic culture, such as approval from colleagues and support from leadership, particularly influences providers' provision of LARC to adolescents.

Barriers

Similar to previous research findings (Berlan et al., 2017; Kavanaugh et al., 2013; Rubin et al., 2013b; Swanson et al., 2013), this project's respondents identified the following perceived concerns when counseling adolescents on LARC methods: side effects, encouraging condom non-use in patients, medical risks associated with device insertion or removal, and unease with prescribing without parental consent. Of note, side effect concerns associated with LARC were selected by all participants, and thus was identified as the most significant concern. In addition,

one participant acknowledged a perceived concern of future infertility risks associated with IUD use.

Similar to findings from Kavanaugh and colleagues (2013), this project demonstrated that providers perceive side effects as a significant cause of concern for LARC use in adolescents, and perhaps view adolescents less tolerant of LARC side effects. Providers may associate these perceptions with an erroneous idea that adolescents discontinue LARCs at a greater rate than older women (Kavanaugh et al., 2013). LARCs have very limited side effects, most notably irregular bleeding and amenorrhea (Curtis et al., 2016). Irregular bleeding is not harmful and typically decreases after 3 to 6 months of LARC use (Curtis et al., 2016). After continued use of the subdermal implant or hormonal IUD, approximately half of patients will experience amenorrhea, which again is not harmful and patients frequently consider this to be a benefit of LARC methods (Curtis et al., 2016). However, it should be noted that a side-effect of the non-hormonal IUD can be a heavier bleeding pattern. Thus, one may infer that participants in this project typically avoid the non-hormonal IUD due to this common side effect (Curtis et al., 2016); however, this was not specifically asked or stated by providers in this project.

A few participants in this project identified an increased risk of pelvic inflammatory disease (PID) as an additional cause of concern with IUD use, however the incidence of PID has not been shown to be greater in patients using IUDs compared to patients using OCP or the injection (Curtis et al., 2016). The rate of PID has been found to be higher in the first 20 days following IUD insertion, however, this rate was not statistically different than the overall incidence rate of PID in the general population (i.e., those not using IUDs) (Curtis et al., 2016).

As the OCP was the most frequent contraceptive method both recommended and prescribed by participants in this project, and similar to findings from Berlan et al. (2017), participants may thus perceive adolescents and their parents to be most interested in the OCP for contraception. However, recent research shows that both patient continuation and patient satisfaction rates are significantly higher (i.e., 35% and 30%, respectively) in patients utilizing a LARC method, compared to patients using OCP (Diedrich et al., 2016; Peipert et al., 2011).

Views

In this project, the most significant benefit of LARC use was pregnancy prevention, however, providers' views and personal bias act as barriers to LARC counseling for adolescents.

Facilitators

Similar to the Rubin et al. (2013a) study, all participants in this project view LARCs to promote condom nonuse in adolescents, however, in contrast to Rubin et al. (2013a) findings, all providers in this project view adolescent pregnancy prevention more important than STI prevention. This acts as a facilitator to prescribing LARC as STIs can be easily treated, whereas an unintended pregnancy can result in a lifelong commitment of caring for a child.

Barriers

One participant described an appropriate candidate of LARC is a patient who does not desire pregnancy for a 3- to 5-year time period. However, it should be noted that LARC devices can be removed at any time with the ability to conceive immediately returned. Thus, a female who desires pregnancy in the next 3 to 5 years should still be counseled and offered a LARC method as appropriate. Providers in this project who do not counsel on the IUD are primarily concerned with a greater risk of contracting STIs, promoting unprotected intercourse, traumatic

experience with device insertion, and not having the appropriate skills to insert the device. Further, pediatric providers report the IUD is not a common method prescribed in his/her department. Gabzdyl et al (2015) described that providers may exhibit personal views associated with disapproval of current guideline recommendations, such as continuing to perform pelvic examinations in patients initiating the subdermal implant. Likewise, the one participant who stated evidence-based guidelines may or may not increase his/her likelihood and intent to prescribe LARC to adolescents may simply have a personal disfavor to one (or both) of these methods. Asking the participant to provide specifics may have been beneficial to further understand the reasoning behind selection of this answer.

Theory of Planned Behavior

Influenced from the Theory of Planned Behavior (TPB), a providers' intention to counsel and prescribe LARC methods to adolescent females is driven by attitudes, social norms, and anticipated control over the behavior (Ajzen, 1991; Grol et al., 2007). Based on the TPB, a provider will be intentional, and thus successful, in counseling and prescribing LARC to adolescents so as long as he or she has the appropriate attitudes, resources, and environment available to them (Ajzen, 1991).

Attitudes

Provider's attitudes regarding the prescription of LARC to adolescents are influenced by their perceptions and views of the risk to benefit ratio, and subsequently patient outcomes, associated with LARC use in the adolescent population. Attitudes are also influenced by providers own personal beliefs regarding the device itself. Participants in this project believed LARCs exhibit heightened risks for STIs, medical risks, and side effects, thus could lead to

negative patient outcomes. These factors likely influenced providers' flawed perceptions and views on LARC, which act as barriers to LARC counseling and prescribing practices to adolescents within this organization.

Subjective Norm

As all participants reported colleagues approve of LARC use in adolescents, the clinic culture within this specific CHC acted favorably to LARC counseling. Providers are more likely to counsel and prescribe LARC to adolescents when colleagues agree with and approve of this practice. Further, one of the top three preferred methods to obtain continuing medical information within this CHC was from colleagues. This highlights the significance that clinic culture and influence from colleagues have in promoting, or hindering, LARC prescribing practices within this CHC. Thus, the subjective norm acts as a significant facilitator to providers' LARC counseling and prescribing practices.

Perceived Behavioral Control

The clinical environment unfavorably influenced providers' perceived behavior control over prescribing LARC to adolescents. Time constraint, availability of devices, insurance reimbursement, cost of the device, and parental concerns were the most common issues identified by participants in this project. Providers benefit from their wealth of knowledge regarding LARC methods, however, they lack the resources required to effectively and successfully prescribe LARC. Thus, organizational limitations and lack of resources act as a significant barrier to providers' LARC counseling and prescribing practices, which further limit adolescents' access to LARC methods in this organization.

Limitations

The first notable limitation to this project is a response rate of 14%. Response rate is defined as the number of respondents who actively participated in the study relative to the total number of people invited to participate (Polit & Beck, 2012). Typically, internet questionnaires generate the lowest response rates, when compared to similar means of obtaining data, such as interviews and mail-out surveys (Polit & Beck, 2012). Further, it is not uncommon for web-based surveys to exhibit a response rate of less than fifty percent (Polit & Beck, 2012). It should be noted that one respondent was excluded from data analysis, as this participant did not meet the inclusion criteria. In addition to the initial invitation, this project distributed two weekly reminder emails in an attempt to increase survey response rates. Follow up reminders typically increase response rates to survey questionnaires (Polit & Beck, 2012). All emails were distributed by the providers' respective department heads to demonstrate support from administration for this project, as well as have a familiar, internal sender email address. Formal letters of support had also previously been obtained from each department head. However, it was not apparent if potential participants actually received these weekly reminders. To improve upon this, future projects should receive confirmation that the original survey email and reminder emails were forwarded appropriately to potential participants via verification from the medical administrator in charge of forwarding emails and/or the project's principal investigator is copied on the forwarded emails.

An additional measure to improve upon this project, and future projects, is to focus on one specific clinic site within Adelante. In contrast, this project included all potential participants at all nine satellite clinics within this CHC located throughout the region. This would limit the

number of potential participants, but may enhance response rate as the project would focus on a smaller set of potential participants, and a greater amount of time could be devoted to one particular clinic. Also, a provider specifically staffed at this one clinic can then act as a committee member on the quality improvement team to assist with suggestions on the best approach to achieve the greatest response rate.

Additional identified limitations were project duration time frame and staff duties. The entirety of this project was conducted over a three-week time period. Therefore, it is plausible that participants were not given an adequate amount of time to respond and participate in this project. Further, it is well known that staff of CHC and other publically funded entities are often understaffed and inundated with a large amount of duties and responsibilities. Staff turnover is frequently high within these organizations, only adding to the large volume of tasks to complete. Thus, it is also logical that potential participants are inundated with emails and either: a) were not able to participate in this project due to time constraints, b) chose not to participate due to the number of tasks and duties taking precedence, and/or c) neglected the project emails as a result of being submerged with countless emails. To improve upon this limitation, the project could have been conducted during a monthly medical staff meeting to ensure potential participants were completing the survey on administrative time versus on their own time. In addition to the introduction and invitation to participate provided at each medical staff meeting, the project leader could have been at a medical staff meeting for data collection, to distribute the survey via an online, web-based link or a tangible paper format for response completion. Another possibility would be to ensure potential participants were given administrative time away from patient care to complete the survey and other necessary tasks.

Another limitation to this project may be influenced by response bias, in that individuals most likely to participate and respond to the survey are providers most interested in the topic of contraception, and particularly LARC. Response bias is the differences between those who participated in the project and those who refused to participate; this is also referred to as nonresponse bias (Polit & Beck, 2012). It should be noted that the majority of participants, or 4 of the six respondents, were from the department of family practice, whereas no providers within the obstetric-gynecologic department participated in this project. One of the aims of this project was to attempt to identify if providers from different specialties (i.e., family medicine, pediatrics, and obstetric-gynecologic) had contrasting knowledge and opinions regarding the prescription of LARC to adolescents. Thus, the lack of participation from the obstetric-gynecologic department affected data analysis as comparisons regarding knowledge, perceptions, and views were not able to be drawn between providers of different departments, other than those made between family medicine and pediatrics.

Another limitation to this project pertains to survey structure, i.e. question content and wording of questions. For example, the phrase “never sexually active adolescent” was included in questions 10 and 11, and providers were asked to select necessary tests required before LARC insertion. All participants selected STI screening was required prior to the insertion of both the implant and IUD. However, it is plausible that participants simply overlooked the specific phrase of “never sexually active,” which may have influenced their answer selection. Also, the survey could have included an additional demographic question asking potential participants to identify their gender. This would have permitted additional comparisons to be made to determine if perceptions and views of LARC use in adolescents differed with regard to female versus male

providers. Further, as one respondent answered that “maybe” his/her intention to prescribe LARC would change if current guidelines endorsed LARC use in adolescents, an additional question could have been considered that inquired as to why this may or may not influence his/her likelihood to prescribe LARC to adolescents. This may have shed light on additional barriers needing to be addressed within this CHC.

Lastly, this DNP project was designed to be a quality improvement (QI) project for one Community Health Center (CHC) organization to provide an assessment and develop recommendations to improve upon LARC counseling and prescribing practices for adolescents. Thus, synthesis and analysis of results may not be transferable to another context (Polit & Beck, 2012). Further, inferences from the findings of this project’s sample of participants may not be generalizable to providers in other areas or settings within Arizona or throughout the nation at-large (Polit & Beck, 2012). Thus, the context of this quality improvement initiative hinders the ability to draw analogies to other organizations that provide care to diverse patient populations who may require separate and distinct needs from the providers and patients described in this study.

Conclusions and Recommendations

In conclusion, analyses from this DNP project supplement the argument and rationale that clinic and provider-based barriers may significantly limit adolescents access to more effective contraceptive options, such as LARC. This quality improvement project successfully identified clinic and provider level facilitators and barriers that influence LARC prescribing practices to adolescent patients within Adelante Healthcare. If further projects are to be

developed, these should attempt to address the barriers identified in this project, as acknowledged below.

- Providers should address and counsel adolescents on contraception with every patient encounter. Research recommends contraceptive counseling begin with the most effective contraceptive methods, such as LARC; however, patient preference is always considered priority when a method is selected. Once a method, if any, is chosen, the provider must assess patient adherence to and satisfaction with the selected method at every visit (ACOG, 2017)
 - I. Educate providers why counseling is crucial with every patient encounter
 - II. Institute specific measures within the Electronic Health Record (EHR) that verify whether contraceptive counseling was addressed at a particular visit.
 - i. For example, providers must document if contraceptive counseling was addressed before clinical documentation is able to be signed off.
- Providers should be educated on current STI Screening Guidelines (CDC, 2015a) relative to requirements needed prior to the prescription of the subdermal implant.
 - I. Prior to subdermal implant initiation, STI screening is not required. Requiring an STI screen, and unnecessarily obtaining and awaiting test results, significantly limits adolescents access to this effective contraceptive method (Curtis et al., 2016).
 - II. Organizational protocols can be implemented that quickly remind providers what prerequisites are required, specifically with regard to STI screening/testing, for each contraceptive option prior to initiation.

- i. Institute specific measures within the EHR that document when the last STI screening and/or testing was performed, if any.
 - ii. The Medical Assistant (MA) is responsible for collecting this data during the visit, documents this information in the EHR, and relays this information to the provider, as appropriate.
 - iii. If providing care to a new patient, the Medical Assistant (MA) can obtain outside records and document when STI screening/testing was most recently performed.
- Acknowledge providers' faulty perceptions on LARC and educate them appropriately, based on evidence-based recommendations and established clinical practice guidelines.
 - I. The most frequently identified concern in this project was side effects associated with LARC use. Additional concerns were encouraging condom non-use, medical risks with insertion/removal, and unease with prescribing without parental consent.
 - II. Educational interventions that address and attempt to overcome these perceptions should be implemented in-person, during a medical staff meeting.
 - i. The most common side effects with subdermal implant and hormonal IUD use are pain, irregular bleeding, and amenorrhea. Pain and irregular bleeding usually decrease after 3 to 6 months of use, and amenorrhea typically occurs after 1 year of continuous use. However, it should be highlighted, and providers should be aware, that many

patients consider infrequent bleeding and amenorrhea as benefits to LARC methods (ACOG, 2016).

- ii. Less common side effects of the subdermal implant and hormonal IUD can be influenced from hormones, and include headaches, nausea, and breast tenderness. However, rates of these side effects are generally not different, or often less common, when compared with similar side effects of OCP use (ACOG, 2016).
- iii. Providers should also be educated on recent research that demonstrates greater patient continuation and satisfaction rates associated with LARC use, when compared to OCP use.

After addressing the barriers identified in this project and implementing the recommendations above to enhance providers' LARC counseling and prescribing practices, providers will then improve adolescents' access to more effective contraceptive methods and ensure adolescents are offered the full spectrum of contraceptive options within this CHC. This will enhance patient care and outcomes, and reduce the unintended adolescent pregnancy rate within the community.

APPENDIX A:
LARC PRACTICES EVIDENCE APPRAISAL

Reference	Research Question / Study Design	Sample and Setting	Methods for Data Collection and Data Analysis	Findings
<p>Berlan, E. D., Pritt, N. M., & Norris, A. H. (2017). Pediatricians' attitudes and beliefs about long-acting reversible contraceptives influence counseling. <i>Journal of Pediatric and Adolescent Gynecology</i>, 30(1), 47-52</p>	<p>Research Question: To explore pediatricians' beliefs and attitudes about LARC and how these beliefs and attitudes influence contraceptive counseling practices</p> <p>Study Design: Qualitative, exploratory</p>	<p>Sample: N=23, all primary care pediatricians</p> <p>Mean age: 43 years; 73% female; most in practice minimum of 5 years</p> <p><u>Sampling strategy:</u> convenience (presentation during staff meeting and emails sent to potential participants)</p> <p>Setting: Midwestern city; community-practicing physicians affiliated with the Nationwide Children's Hospital</p>	<p>Data collection: Semi-structured, qualitative interviews (30 minutes long; private) using open ended questions. Interview guide piloted prior to data collection.</p> <p>Interviews were audio recorded, and same researcher transcribed recordings</p> <p>Principle investigator (pediatric specialist at the study institution) blinded to names of participants, and did not listen to audio recordings</p> <p>Research assistant (with no previous experience at the institution) conducted and transcribed interviews</p> <p>Quantitative data collected and managed using REDCap</p> <p>Codes (for qualitative data) developed and refined over multiple iterations of analyses.</p> <p>Data analysis: Quantitative data (e.g. demographics) included statistical analyses of frequencies or medians</p> <p>Qualitative data analyzed using</p>	<p>Many participants had unsupportive attitudes and inaccurate beliefs regarding adolescent IUD use</p> <p>Lack of or outdated knowledge regarding IUD complications compelled many apprehensions; many respondents acknowledged gaps between their knowledge and current evidence-based recommendations</p> <p>Beliefs/views about adolescents' maturity (or lack thereof), adolescents as poor candidates, and IUDs not acceptable to adolescents</p> <p>Personal bias or a "personal feeling" of disapproval of IUD use in adolescents</p> <p>Belief that IUD puts pt at risk for STDs and PID</p> <p>Compared to IUD, participants generally highly regarded the subdermal implant for use in adolescents</p> <p>Views that adolescents (and their parents) have predetermined expectations for contraception (e.g. belief that families are most interested in the pill)</p>

Reference	Research Question / Study Design	Sample and Setting	Methods for Data Collection and Data Analysis	Findings
			<p>twofold coding schema: 1) a priori and 2) open coding</p> <p>NVivo 10 software used for all coding and analysis procedures for qualitative data</p>	<p>Perceptions about adolescent acceptability, and beliefs that adolescents are not interested in LARC</p> <p>Insufficient knowledge and unsupportive attitudes regarding LARC were important factors for not counselling on these methods</p>
<p>Gabzdyl, E., Engstrom, J. L., & McFarlin, B. L. (2015). Health care workers' beliefs and practices around pap screening for adolescents seeking contraception. <i>Nursing for Women's Health, 19</i>(3), 216-223.</p>	<p>Research Question: To investigate health care workers' knowledge, attitudes regarding the latest evidence-based guidelines; provided educational intervention regarding EBP guidelines</p> <p>Study Design: Quality improvement project that provided a multifaceted educational program explaining current guidelines to participants. Program was 20-minutes in duration, and included provision of printed materials, such as copies of the current guidelines and consensus opinions as well as copies of the PowerPoint slides from the educational presentation</p>	<p>Sample: N=28. physicians, nurse-midwives, physician assistants, registered nurses, medical assistants and reception staff.</p> <p><u>Sampling strategy:</u> convenience</p> <p>Setting: 3 federally qualified health care clinics in a large metropolitan health care system in the Midwestern United States</p>	<p>Data collection: Attitudes and beliefs were measured through the use of a short, investigator-developed survey, both pre- (immediately prior) and post-intervention (6 weeks after) participants responded anonymously</p> <p>Data analysis: Data were analyzed using SPSS version 19.0</p> <p>Chi-square tests were calculated for categorical data. Fisher's exact test was computed when there were fewer than five cases per cell. Mann-Whitney <i>U</i> tests were performed for ordinal level data, and t-tests were calculated for continuous, normally distributed data. Level of significance was set at .05 for all</p>	<p>Only a modest reduction in the frequency of Pap screening; a substantial number of adolescents continued to undergo unnecessary Pap screening prior to contraceptive management</p> <p>Before the educational intervention, 36.1% of adolescents were required to have Pap screening for contraceptive visits, compared with 22.2% of the adolescents after the educational intervention. The decrease in frequency of Pap screening was statistically significant ($\chi^2=4.56, p = .041$).</p> <p>Providers reluctant to change practice cited beliefs of "not wanting to do things differently, not agreeing with the guidelines, not believing it would be possible to follow the guidelines</p>

Reference	Research Question / Study Design	Sample and Setting	Methods for Data Collection and Data Analysis	Findings
			tests of statistical significance.	and not believing that changing practice would make any difference” When asked what would make participants change their practice, answers revealed two types of response: either that nothing would make them change, or that they would change if they were given guidelines and told to follow them.
Hallum-Montes, R., Middleton, D., Schlanger, K., & Romero, L. (2016). Barriers and facilitators to health center implementation of evidence-based clinical practices in adolescent reproductive health services. <i>Journal of Adolescent Health, 58</i> (3), 276-283.	<p>Research Question: To examine barriers and facilitators that health centers experience when implementing evidence-based clinical practices for adolescent reproductive health services and discusses strategies to address identified barriers</p> <p>Study Design: Qualitative, exploratory investigation utilizing grounded theory approach</p>	<p>Sample: 30 health centers; 85 leaders and staff</p> <p><u>Sampling strategy:</u> purposive sample of health centers and participants</p> <p>Setting: Participants were members of 30 health centers in Alabama, Georgia, Massachusetts, North Carolina, South Carolina, Pennsylvania, and Texas</p>	<p>Data collection: Semi-structured face-to-face interviews</p> <p>Data analysis: Qualitative data were analyzed using Atlas.ti software.</p> <p>Interview data were analyzed for emergent themes following a grounded theory approach.</p> <p>In accordance with this approach, interview transcripts were examined line-by-line and assigned “open codes” by a team of three coders. The analysis involved an iterative process of coding, checking consistency (reliability) in coding, modifying codes as necessary, and recoding. Related codes formed axial</p>	<p>Grounded theory analysis revealed that barriers and facilitators at both the health systems and community levels significantly influenced the efforts of health center leadership and staff to implement EBCPs in adolescent reproductive health care.</p> <p>Health systems level factors: need supportive leadership and enhanced communication, and staff attitudes and beliefs</p> <p><i>Staff attitudes and beliefs:</i> general discomfort (especially pediatricians) in addressing reproductive health needs of adolescents.</p> <p>Religious beliefs noted in the</p>

Reference	Research Question / Study Design	Sample and Setting	Methods for Data Collection and Data Analysis	Findings
			codes. The final intercoder reliability was 94%.	southeastern region of U.S. and “Bible belt” of country
<p>Kavanaugh, M. L., Frohwirth, L., Jerman, J., Popkin, R., & Ethier, K. (2013). Long-acting reversible contraception for adolescents and young adults: patient and provider perspectives. <i>Journal of Pediatric & Adolescent Gynecology</i>, 26(2), 86-95.</p>	<p>Research Question: To describe and explore provider- and patient-level perspectives regarding long-acting reversible contraception (LARC) for teens and young adults (ages 16-24).</p> <p>Study Design: Qualitative methods</p>	<p>Sample:</p> <p>1) Clinic sites (N=20). (Planned Parenthood, n=6; federally qualified health centers, n=3; health departments, n=3; hospitals, n=2; other, n=6)</p> <p>2) Staff (N=37) (Clinicians, educators, MAs, receptionists)</p> <p>3) Patients (adolescent females, ages 16-24; N=48)</p> <p><u>Sampling strategy:</u> Convenience, from 2009 Family Planning Annual Report</p> <p>Setting: Nation-wide, U.S.</p> <p>20 publicly funded (Title X) facilities that provide family planning services (Planned Parenthoods, health departments, and family planning councils)</p>	<p>Data collection:</p> <p>20 semi-structured telephone interviews (1 hour long) with administrative directors from each site.</p> <p>From the 20 sites:</p> <p>-6 focus group discussions (FGDs; 90 minutes in duration) with a total of 37 facility staff. Facilitators used a guide that queried participants.</p> <p>-48 in-depth interviews (IDIs; 60 minutes in duration) with patients. IDI guide was pretested.</p> <p>Data analysis:</p> <p>Recordings from each of the 3 components were transcribed verbatim and identifying information was stripped during the cleaning phase. FGDs responses organized into themes</p> <p>3 members of the research team independently double- coded 3 director interview transcripts and 3 client interview transcripts and then examined inter-coder reliability, which initially ranged</p>	<p>Directors highlighted provider-related challenges: resistance to change, lack of experience with LARC, attitudes about young women using LARC</p> <p><i>Providers:</i> age not a limitation, instead behavioral barriers, i.e multiple partners, and anatomical barriers associated with nulliparity / smaller cervix, as LARC ineligibility</p> <p><i>LARC candidacy:</i> some clinicians considered ineligible for IUDs: teens, non-monogamous women, and women who have never given birth</p> <p><i>Staff perceptions of advantages(+)/</i></p> <p><i>disadvantages(-):</i> (+)=forgettable, long-lasting, beneficial SE, provider-controlled; (-)=SE, pain w/ insertion or removal, reduced condom use, cost</p>

Reference	Research Question / Study Design	Sample and Setting	Methods for Data Collection and Data Analysis	Findings
			<p>from 76%-100% agreement</p> <p>NVivo 8 to organize the data, code transcripts, and generate code reports.</p>	<p>Patients emphasized the effectiveness of LARC methods to a greater extent than did staff.</p> <p>Staff had more concerns about IUD use and a stronger preference for implants for younger women. IUDs cause clinical and logistical challenges, including difficulty dilating the cervix among nulliparous women and/or placing the device in a small uterus.</p> <p>FGD participants from 5 sites felt that IUDs are not good methods for young women because they are not comfortable reaching into their vaginas to regularly check the strings. Also, felt that the location and ease of insertion associated with the implant rendered it a particularly appropriate method for young women.</p> <p>Belief that adolescents are less tolerant of side effects thus would led them to discontinue the use of LARC methods, especially implants, at a higher rate than older women (thus steered patients away from</p>

Reference	Research Question / Study Design	Sample and Setting	Methods for Data Collection and Data Analysis	Findings
				LARC) Staff were apprehensive about eliminating the pelvic exam requirement for procurement of a LARC
Lawrence, R. E., Rasinski, K. A., Yoon, J. D., & Curlin, F. A. (2011). Obstetrician-gynecologists' views on contraception and natural family planning: a national survey. <i>American Journal of Obstetrics & Gynecology</i> , 204(2), 124 e121-127.	<p>Research Question: The objective of the study was to characterize beliefs about contraception among obstetrician-gynecologists; specifically evaluating moral or ethical objection to, and whether they would offer, 6 common contraceptive methods</p> <p>Study Design: National (U.S.) mailed survey. Participants were mailed a confidential self-administered questionnaire.</p>	<p>Sample: 1154 obstetrician / gynecologist physicians, all < 65 years of age</p> <p><u>Sampling strategy:</u> Stratified random sample of a total of 1800 general ob/gyns</p> <p>Random sampling of religious minorities; religious affiliation was categorized as Nonevangelical Protestant, Evangelical Protestant, Catholic (includes Roman Catholic and Eastern Orthodox, Muslim, Jewish, Hindu, other religion (includes 9 Buddhists), and no religion.</p> <p>Setting: The sample was generated from the American Medical</p>	<p>Data collection: Physicians received up to 3 separate mailings of the questionnaire with incentives with each mailing. Response rate was 66%</p> <p>Primary criterion variables were whether the physician has a moral or ethical objection to any of 6 common contraceptives: OCP, implants and/or injections, IUD, diaphragms/cervical cap with spermicide, condoms, or tubal ligation; and whether the physician would offer the method if a patient requested it. Response options were yes or no.</p> <p>Religion assessed by answering the following question: How important would you say your religion is in your own life? Response options were dichotomized.</p> <p>Data analysis: Responses were analyzed for each method individually; then</p>	<p>Overall, 4.9% of US obstetrician-gynecologist physicians have a moral or ethical objection to a contraceptive method, and 6.8% would not offer 1 or more contraceptives if patients requested it. The most common objection was to intrauterine devices (4.4% object, 3.6% would not offer them), followed by progesterone implants and/or injections (1.7% object, 2.1% would not offer them),</p> <p>Objections did not vary by region, providers in western states were less likely to refuse a contraceptive request compared with southern doctors (4% vs 9%; OR, 0.4; 95% CI, 0.2– 0.9).</p> <p>Religious physicians were more likely to have objections and to refuse to provide some contraceptives. Compared with doctors who attend services twice a year or less, those who attend twice a month or more</p>

Reference	Research Question / Study Design	Sample and Setting	Methods for Data Collection and Data Analysis	Findings
		<p>Association Physician Masterfile, a database intended to include all practicing U.S. physicians</p>	<p>pooled analyses of all objections into a single variable indicating the physician objected to 1 or more contraceptive methods.</p> <p>Case weights to adjust for sample stratification and variable response rates to generate estimates for the population of US obstetrician-gynecologists.</p> <p>X(squared) test to examine the associations between each background variable and physicians' beliefs about contraception and natural family planning.</p> <p>Multivariable logistic regression using physicians' sex, race, region, and age as covariates.</p> <p>All analyses were conducted using the survey-design-adjusted commands of Stata SE statistical software</p>	<p>were more likely to object to a contraceptive method (43% vs 5%; OR, 7.4; 95% CI, 2.5–22). These frequent attenders were also slightly more likely to refuse to provide a contraceptive method (9% vs 5%; OR, 1.9; 95% CI, 1.0–3.7)</p> <p>Religious physicians were more likely to object (odds ratio, 7.4) and to refuse to provide a contraceptive (odds ratio, 1.9).</p> <p>72% of Nonevangelical Protestants considered natural family planning a poor option, the belief was less common among Evangelical Protestants (60%; OR, 0.6; 95% CI, 0.3–0.9) and Catholics (56%; OR, 0.5; 95% CI, 0.3–0.7)</p>
<p>Murphy, M. K., Stoffel, C., Nolan, M., & Haider, S. (2016). Interdependent barriers to providing adolescents with long-acting reversible contraception: qualitative insights from providers. <i>Journal of</i></p>	<p>Research Question: Pediatricians, family medicine providers, and advanced practice nurses (APNs) self-reported attitudes and practices regarding LARC provision to adolescents</p> <p>Study Design: Modified</p>	<p>Sample: N=16. Pediatricians (n=5), family medicine physicians (n=5), APNs (n=6) who care for adolescents</p> <p><u>Sampling strategy:</u> Purposive, using emailed</p>	<p>Data collection: 1 semi-structured interview with a member of the study staff (RN with no previous relationship to study participants prior to study)</p> <p>Interviews ranged 23-47 minutes (mean=37 minutes)</p>	<p>3 essential components for providing LARC to adolescents and are interdependent:</p> <p>1) Provider confidence in LARC: providers lack of confidence in counseling on LARC.</p> <p>Age/parous-based bias: perception that LARC insertion physically traumatic or</p>

Reference	Research Question / Study Design	Sample and Setting	Methods for Data Collection and Data Analysis	Findings
<p><i>Pediatric and Adolescent Gynecology</i>, 29(5), 436-442.</p>	<p>grounded theory approach</p>	<p>invitation and in-person recruitment at a federally qualified health center</p> <p>Setting: Eligible providers practiced in in large academic and community health centers, federally qualified health centers, school based health centers, and private practices in Chicago, Illinois</p>	<p>Participants compensated with thirty-dollar gift card</p> <p>All interviews audio recorded; transcribed and uploaded into Dedoose version 6.2.21</p> <p>Data analysis: Content analysis, interview guide and code book informed a priori and with emergent ideas</p> <p>Coding, memo-writing, development of conceptual models used to identify themes and relationships</p> <p>Code book modified iteratively, 2 study team members independently coded data according to final code book</p> <p>Cohen k-test of inter-rater reliability of code application was 93.61%, or “almost perfect” reliability</p>	<p>emotionally distressing.</p> <p>2) patient-centered counseling: providers perceived adolescents disinterested in LARC, and prefer other methods.</p> <p>3) instrumental support for LARC insertion: lack of provider training and/or skill in LARC insertion influences LARC counseling</p> <p>*A clinical culture supportive of LARC influences LARC provision, such that providers lack of knowledge and skills = reduced self-confidence = need for instrumental support (education, training, mentors)</p>
<p>Rubin, S. E., Campos, G., & Markens, S. (2013). Primary care physicians' concerns may affect adolescents' access to intrauterine contraception. <i>Journal of Primary Care Community Health</i>, 4(3), 216-219.</p>	<p>Research Question: To explore primary care physicians' (PCPs) approaches to contraception counseling with adolescents, focusing on their views about who would be appropriate IUD candidates</p> <p>Study Design: Standard</p>	<p>Sample: N= 28. Family physicians (n=9) pediatricians (n=10), ob/gyns (n=9)</p> <p><u>Sampling strategy:</u> purposeful stratified sampling of clinical sites; random selection for</p>	<p>Data collection: Phone interviews conducted by SER (first author) until reaching saturation for each provider type</p> <p>Interviews were recorded and transcribed.</p> <p>Data analysis: The analysis team consisted of a</p>	<p>Most participants exhibit a patient-centered general contraceptive counseling approach. But, when considering IUDs many PCPs describe more paternalistic counseling & use restrictive criteria for IUD candidates</p> <p>Participants believe adolescents'</p>

Reference	Research Question / Study Design	Sample and Setting	Methods for Data Collection and Data Analysis	Findings
	qualitative techniques	individual providers within sites Setting: Urban, participants provide at minimum 30% outpatient clinical time, and practice at 1 of 2 large medical centers in the Bronx or Brooklyn, New York (with 19 distinct practice sites)	family physician clinical researcher (SER), an experienced clinical research coordinator (GC), and a qualitative sociologist with reproductive health expertise (SM) Analysis team used standard qualitative techniques to develop a coding template and apply codes	primary concern is pregnancy prevention, however, many PCPs prioritize STI prevention and thus failed to offer an IUD as they believed IUD use in adolescents leads to failure of condom use Attributes PCPs associate with an appropriate IUD candidate include responsibility, reliability, maturity, and monogamy; respondents do not perceive adolescents as appropriate IUD candidates for patients not meeting this criterion Provider bias and subjective assessment of sexual behavior risk, attitudes about STI risk, and overly restrictive IUD eligibility criteria all decrease adolescent access to IUDs by limiting counseling and provision
Rubin, S. E., Davis, K., & McKee, M. D. (2013). New York city physicians' views of providing long-acting reversible contraception to adolescents. <i>Annals of Family Medicine, 11</i> (2), 130-136.	Research Question: To explore NYC primary care physicians' experiences, attitudes, and beliefs about counseling and provision of LARC to adolescents Study Design: Qualitative exploratory interview study Interview guide based on	Sample: N=28; 9 family physicians, 10 generalist pediatricians, 9 obstetricians / gynecologists who care for adolescents 20% female, 80% male Participants completed	Data Collection: In-depth telephone interviews conducted by one physician-researcher until saturation reached for each of the 3 physician types Interviews lasted 25 to 45 minutes each Interviews were recorded and transcribed; coded transcripts	Using COM-B model: <u>Capability:</u> knowledge / belief that adolescent is candidate for IUD and skills to discuss or insert IUD was identified as the prerequisite activating other components of the model All pediatrician participants were unaware nulliparous adolescents are candidates for IUD. Most participants practiced what they

Reference	Research Question / Study Design	Sample and Setting	Methods for Data Collection and Data Analysis	Findings
	<p>implementation science theoretical framework; interview guide was previously piloted (pilot data not included in analysis)</p> <p>Vignette woven into interview guide to obtain more realistic responses</p>	<p>medical residency from 1977 to 2010</p> <p><u>Sampling strategy:</u> Purposeful stratified sampling of primary care clinical sites; random selection of physicians within 17 different residency and nonresidency sites</p> <p><u>Setting:</u> Study participants practiced at and recruited from 2 large NY medical centers located in the Bronx (all 3 physician types) or Brooklyn (family physicians only)</p>	<p>entered into MAXQDA 10 qualitative software</p> <p>Data Analysis: Analysis team comprised of 2 experienced family physician clinical researchers (who practiced at study setting) and a graduate student in psychology</p> <p>Transcripts reviewed periodically, team members independently identified themes, met to review transcripts to refine a coding template, and developed a codebook; worked together until conceptual coherence met</p> <p>A second author listened to recordings to ensure accuracy, as all interviews were conducted by a single author</p> <p>Iterative coding and analytic process; results interpreted using Capability, Opportunity, and Motivation-Behavior (COM-B) conceptual model of behavior change</p>	<p>learned in residency, which does not reflect current IUD eligibility criteria or guidelines</p> <p><u>Opportunity:</u> environmental issues that influence behavior. Main component is culture of clinic; physicians more likely to counsel on LARC if colleagues were supportive of LARC use in adolescents. Perception that adolescent mothers more interested in IUD than nulliparous. Beliefs that parents are resistant to IUD use in the adolescent.</p> <p><u>Motivation:</u> belief or perception about consequences: 1) STD vs. pregnancy prevention and 2) IUD vs. condom use (e.g. more IUD use = less condom use = more STDs). Perceptions about risk of IUD device itself, but these risks are not scientifically sound (e.g. IUD = more at risk for infection) COM-B figure not developed for implantable device (subdermal) as too few respondents discussed this option.</p> <p>Outcomes grouped into 2 behaviors: counseling (discussing, mentioning, or recommending LARC) and</p>

Reference	Research Question / Study Design	Sample and Setting	Methods for Data Collection and Data Analysis	Findings
				inserting (inserting the LARC device)
<p>Swanson, K. J., Gossett, D. R., & Fournier, M. (2013). Pediatricians' beliefs and prescribing patterns of adolescent contraception: a provider survey. <i>Journal of Pediatric & Adolescent Gynecology</i>, 26(6), 340-345.</p>	<p>Research Question: To elucidate the beliefs and prescribing patterns of general pediatricians and pediatric residents and to distinguish whether these were affected by practice setting, level of training, or gender</p> <p>Specific questions incorporated use of a 14-year-old patient.</p> <p>Study Design: Survey</p>	<p>Sample: N=411. General pediatricians and pediatric residents</p> <p>24% male.</p> <p><u>Sampling strategy:</u> Convenience; sent by email through the use of Find a Physician tool on Lurie Children's Hospital website</p> <p>Setting: All participants were affiliated with Lurie Children's Hospital in Chicago, IL</p>	<p>Data collection: Participants were asked to complete a survey regarding adolescent contraception; options for completing the survey included via online through Survey Monkey or to complete a paper form</p> <p>29% response rate (N=120); General pediatricians (n=93), pediatric residents (n=27)</p> <p>45% responded electronically and 55% responded via mail</p> <p>Data analysis: Statistical analysis was performed using SPSS/PASW version 18</p> <p>Chi square tests were conducted to compare the responses of different groups.</p>	<p>The most commonly prescribed method was oral contraceptive pills at 72%. Only 5% had ever prescribed IUDs and 8% of implants to adolescents.</p> <p>Provider views of appropriate contraception for 14-year-old: implant = 31%, IUD = 26%</p> <p>Residents and more recent graduates more likely to have heard of the implant (p=.05), and more likely to consider IUD appropriate for 14 yr old (p<.0001)</p> <p>Numerous misconceptions existed among participants, <i>IUDs</i>: concerns about medical risks (50/95), infertility (29/95), STIs (59/95, second to OCPs at 67/95); <i>Implant</i>: infertility (10/95), medical risks (33/95)</p> <p>More physicians were concerned about non-compliance with IUD use (17/95, 18%) than with OCPs (7/95, 7%) or injectables (3/95, 3%), although the IUD only requires 1 visit in 5 or ten years, while OCPs require taking a daily pill, and injectables</p>

Reference	Research Question / Study Design	Sample and Setting	Methods for Data Collection and Data Analysis	Findings
				<p>require a physician visit every 3 months.</p> <p>Participants reported that they receive most of their information on contraception from colleagues and medical conferences (each 67/120, 56%)</p> <p>Of physicians who prescribe no contraceptive methods (n=25), concerns were: prefer to refer (n=3), judgment by peers (n=1), culture of private practice (n=1)</p> <p>Implant was method that greatest number of participants were unfamiliar with device (43%)</p>
<p>Wilson, S. F., Strohsnitter, W., & Baecher-Lind, L. (2013). Practices and perceptions among pediatricians regarding adolescent contraception with emphasis on intrauterine contraception. <i>Journal of Pediatric Adolescent Gynecology</i>, 26(5), 281-284.</p>	<p>Research Question: To characterize pediatricians' current practice patterns and perceived barriers related to counseling and prescribing of IUDs to adolescents</p> <p>Study Design: 13 item survey; binary and mixed response format, and open-ended format</p> <p>Questions aligned with current guideline recommendations</p> <p>Survey was pilot tested</p>	<p>Sample: General pediatricians (N=400)</p> <p><u>Sampling strategy:</u> Random sampling</p> <p>Setting: All participants were members of Massachusetts Pediatric Society</p>	<p>Data collection: Survey's mailed to participant's office / clinic</p> <p>After 4 weeks, a second mailing of the same survey was sent (with an incentive of two-dollar donation to children's cancer charity)</p> <p>41% response rate (N=167)</p> <p>Data analysis: Survey responses were evaluated descriptively using univariate analyses.</p>	<p>Few participants consider IUD for adolescent. Out of all 9 contraceptive methods, IUD and implant were the least recommended devices (OCP = 94.4% of participants recommended as first-line method; IUD = 10.6% of participants recommended as first-line; Implant = 8.8%)</p> <p>19% reported including IUD as even part of contraception counseling</p> <p>Significantly more female (25% vs 8%, RR 3.13, P=.01), as were</p>

Reference	Research Question / Study Design	Sample and Setting	Methods for Data Collection and Data Analysis	Findings
			<p>Participants stratified into 3 age groups: youngest 25%, middle 50%, and eldest 25%.</p> <p>Mantel-Haenszel chi-square test statistic to examine differences between contraception practice patterns based on age or gender of pediatricians</p>	<p>younger (28% vs 14%, RR 2.06, P=.13), physicians counsel adolescents on IUDs (consistent with previous studies)</p> <p>Less than 25% of pediatricians would offer IUDs to an adolescent, unless she had a history of a vaginal delivery or abortion (i.e. non-nulliparous)</p> <p>Female providers more likely to consider IUD as safe option for nulligravidas (RR 1.51, P= .24), and were significantly more likely to consider IUC safe for parous adolescents (RR 1.49, P=.04)</p> <p>34% of providers highlighted “future fertility concerns” as barrier to counsel adolescents on IUDs</p>

APPENDIX B:
PROJECT SITE APPROVAL



1705 W. Main Street, Mesa, AZ 85203 P: 623-583-3001 F: 480-840-1758

September 1, 2017

University of Arizona Institutional Review Board
Human Subjects Protection Program
1618 E. Helen St
Tucson, AZ 85721

Dear Human Subjects Protection Program Members:

This is to certify that Stephanie Schafer, BSN, RN and DNP-FNP student, has permission to conduct her project, titled "Providers' Knowledge, Perceptions and Views of Prescribing Long-Acting Reversible Contraception to Adolescents in a Southwest Community Health Center" at Adelante Healthcare for partial fulfillment of Doctor of Nursing Practice requirements at the University of Arizona College of Nursing. This study will be conducted within the departments of Family Practice, Pediatrics, and Obstetrics and Gynecology of all nine satellite locations throughout Arizona, and include voluntary completion of an anonymous online provider survey. This study is anticipated to begin Fall 2017 and is not to exceed one year.

I understand that Ms. Schafer will be conducting this project with IRB approval from the University of Arizona.

Sincerely,

A handwritten signature in black ink, appearing to read "Justice Tran".

Justice Tran, MD
Chair of OB/GYN Department

August 9, 2017

University of Arizona Institutional Review Board
Human Subjects Protection Program
1618 E. Helen St
Tucson, AZ 85721

Dear Human Subjects Protection Program Members:

This is to certify that Stephanie Schafer, BSN, RN and DNP-FNP student, has permission to conduct her project, titled "Providers' Knowledge, Perceptions and Views of Prescribing Long-Acting Reversible Contraception to Adolescents in a Southwest Community Health Center" at Adelante Healthcare for partial fulfillment of Doctor of Nursing Practice requirements at the University of Arizona College of Nursing. This study will be conducted within the departments of Family Practice, Pediatrics, and Obstetrics and Gynecology of all nine satellite locations throughout Arizona, and include voluntary completion of an anonymous online provider survey. This study is anticipated to begin Fall 2017 and is not to exceed one year.

I understand that Ms. Schafer will be conducting this project with IRB approval from the University of Arizona.

Sincerely,



Sara M. LeSturgeon, M.D.
Family Medicine Department Chair
Adelante Healthcare

August 9, 2017

University of Arizona Institutional Review Board
Human Subjects Protection Program
1618 E. Helen St
Tucson, AZ 85721

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I understand that Ms. Schafer will be conducting this project with IRB approval from the University of Arizona.

Sincerely,



Angela Johansson, D.O.
Pediatric Department Chair
Adelante Healthcare

APPENDIX C:

THE UNIVERSITY OF ARIZONA INSTITUTIONAL REVIEW BOARD APPROVAL



Research
Office for Research & Discovery

Human Subjects
Protection Program

1618 E. Helen St.
P.O.Box 245137
Tucson, AZ 85724-5137
Tel: (520) 626-6721
<http://rgw.arizona.edu/compliance/home>

Date:	September 20, 2017
Principal Investigator:	Stephanie Lynne Schafer
Protocol Number:	1709825055
Protocol Title:	Providers' Knowledge, Perceptions, and Views of Prescribing Long-Acting Reversible Contraception to Adolescents in a Southwest Community Health Center
Determination:	Human Subjects Review not Required

The project listed above does not require oversight by the University of Arizona because the project does not meet the definition of 'research' and/or 'human subject'.

- **Not Research as defined by 45 CFR 46.102(d):** As presented, the activities described above do not meet the definition of research as cited in the regulations issued by the U.S. Department of Health and Human Services which state that "research means a systematic investigation, including research development, testing and evaluation, designed to contribute to generalizable knowledge".
- **Not Human Subjects Research as defined by 45 CFR 46.102(f):** As presented, the activities described above do not meet the definition of research involving human subjects as cited in the regulations issued by the U.S. Department of Health and Human Services which state that "human subject means a living individual about whom an investigator (whether professional or student) conducting research obtains data through intervention *or* interaction with the individual, or identifiable private information".

Note: Modifications to projects not requiring human subjects review that change the nature of the project should be submitted to the Human Subjects Protection Program (HSPP) for a new determination (e.g. addition of research with children, specimen collection, participant observation, prospective collection of data when the study was previously retrospective in nature, and broadening the scope or nature of the research question). Please contact the HSPP to consult on whether the proposed changes need further review.

The University of Arizona maintains a Federalwide Assurance with the Office for Human Research Protections (FWA #00004218).

APPENDIX D:
PROJECT DISCLOSURE EMAIL AND INITIAL SURVEY LINK

October 2, 2017

You are being invited to participate in a quality improvement study on contraception for the adolescent (aged 15 to 19) female population. The purpose of this project is to identify barriers and facilitators to contraception access for adolescent females. Participation will take place through an online survey, accessed through the link below. This online survey is completely voluntary and anonymous. No identifiable information will be collected. This survey will take no more than 10 to 15 minutes.

There are no foreseen risks associated with participation. Benefits of participation include anonymity, ease of access via online survey, and identification of barriers to adolescent contraception access that may then inform specific quality improvement initiatives within the organization.

No identifiable information will be collected. Only aggregate data results will be shared back to clinic staff.

As a Quality Improvement project, this study was exempt from IRB purview per the University of Arizona's Human Subjects Protection Program.

By clicking on the link below you are consenting to participate in this study. Thank you in advance.

[embedded link placed here]

If you have any questions, concerns, or comments, you may contact:

Stephanie Schafer, BSN, RN (Principal Investigator)
StephanieSchafer@email.arizona.edu

Christy Pacheco, DNP, FNP-BC (Project Chair/Student Advisor)
ChristyP@email.arizona.edu

APPENDIX E:
PROJECT REMINDER EMAIL X2

October 9, 2017; October 16, 2017

Friendly Reminder! *Please disregard this email, and accept our sincere gratitude, if you have previously participated in this study.

You are being invited to participate in a quality improvement study on contraception for the adolescent (aged 15 to 19) female population. The purpose of this project is to identify barriers and facilitators to contraception access for adolescent females. Participation will take place through an online survey, accessed through the link below. This online survey is completely voluntary and anonymous. No identifiable information will be collected. This survey will take no more than 10 to 15 minutes.

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[embedded link placed here]

If you have any questions, concerns, or comments, you may contact:

Stephanie Schafer, BSN, RN (Principal Investigator)
StephanieSchafer@email.arizona.edu

Christy Pacheco, DNP, FNP-BC (Project Chair/Student Advisor)
ChristyP@email.arizona.edu

APPENDIX F:
PROVIDER SURVEY TOOL ON LARC

- 1) How long have you been a practicing provider?
 - a. Less than 5 years
 - b. 5-9 years
 - c. 10-14 years
 - d. 15-20 years
 - e. Greater than 20 years

- 2) Please select your specialty:
 - a. Family Medicine
 - b. Pediatrics
 - c. Obstetric-Gynecologic
 - d. Other (please specify):

- 3) I am employed as a:
 - a. Physician (MD/DO)
 - b. Nurse Practitioner
 - c. Physician Assistant
 - d. Registered Nurse, Medical Assistant, Front desk staff [**if this answer is selected, the participant will be referred to the last page of the survey, and the survey will close*]

- 4) Where do you prefer to obtain continuing medical education/information? (select all that apply)
 - a. Medical staff meeting/in person lecture
 - b. Online webinars/Asynchronous lecture
 - c. Online Podcasts
 - d. Email blast/PDF document
 - e. Journal articles
 - f. Skills/hands-on training
 - g. Colleagues

- 5) How many adolescent patients, aged 15-19, do you provide care for per week?
 - a. None
 - b. 1-20
 - c. 21-40
 - d. 41-60
 - e. 61-80
 - f. 81-100
 - g. Other (please specify):

- 6) When do you discuss contraception with an adolescent female patient?
 - a. Every well-child/annual exam
 - b. With every encounter
 - c. When she discloses she is sexually active

- d. Never
- e. Other (please specify):

7) [Table Format, drag and drop] Please drag and drop the following methods into either category: what you currently recommend and do not recommend for a nulliparous, healthy adolescent female patient:

Currently recommend	Do not recommend

- a. Condom
- b. Diaphragm or cervical cap
- c. Vaginal Ring
- d. Birth control patch
- e. Oral birth control pill
- f. Injectable birth control
- g. Birth control implant
- h. Hormonal Intrauterine device/IUD
- i. Non-hormonal Intrauterine device/IUD

8) Please rank in order, with 1 being the most common, the contraceptive method you are currently prescribing for nulliparous, healthy female adolescent patients:

- a. Condom
- b. Oral birth control pill
- c. Injectable birth control
- d. Subdermal Implant
- e. Hormonal Intrauterine device/IUD
- f. Non-hormonal Intrauterine device/IUD

9) According to evidence-based guidelines, long-acting reversible contraception, such as the intrauterine device (IUD) and the subdermal implant are considered first-line contraception for nulliparous adolescents:

- a. True
- b. False

10) Tests needed before **intrauterine device** insertion in a healthy nulliparous, never sexually active adolescent are (select all that apply):

- a. Bimanual exam and cervical inspection
- b. Papanicolaou smear
- c. Sexually Transmitted Infection testing
- d. None of the above

11) Tests needed before **subdermal implant** insertion in a healthy nulliparous, never sexually active adolescent are (select all that apply):

- a. Bimanual exam and cervical inspection
- b. Papanicolaou smear

- c. Sexually Transmitted Infection testing
 - d. None of the above
- 12) An intrauterine device can be inserted same-day in a healthy, non-symptomatic, non-pregnant sexually active adolescent female if Sexually Transmitted Infection screening is current:
- a. Yes, same-day IUD insertion is recommended
 - b. No, an additional STI screening with negative test result is require prior to insertion
- 13) What concerns do you have when counseling an adolescent female on **oral birth control**? (select all that apply)
- a. Patient non-compliance and risk of pregnancy
 - b. Future infertility risks
 - c. Side effects, i.e. coagulopathies
 - d. None
 - e. Other (please specify):
- 14) What concerns do you have when counseling an adolescent female on the **subdermal implant**? (select all that apply)
- a. Future infertility risks
 - b. Encouraging multiple sex partners
 - c. Encouraging condom non-use
 - d. Medical risks with insertion or removal
 - e. Side effects, i.e. amenorrhea, PID
 - f. Not comfortable with prescribing without parental consent
 - g. Not familiar with this method
 - h. None
 - i. Other (please specify):
- 15) What concerns do you have when counseling an adolescent female on **the intrauterine device/IUD**? (select all that apply):
- a. Future infertility risks
 - b. Encouraging multiple sex partners
 - c. Encouraging condom non-use
 - d. Medical risks with insertion or removal
 - e. Side effects, i.e. amenorrhea, PID
 - f. Not comfortable with prescribing without parental consent
 - g. Not familiar with this method
 - h. None
 - i. Other (please specify):
- 16) If a healthy, nulliparous adolescent scheduled an office visit to discuss contraception, would you counsel her on intrauterine devices or the subdermal implant?

- a. Yes
 - b. No
- 17) If you selected no for the above answer, please describe why you do **not** counsel adolescents on the **intrauterine device/IUD**: (select all that apply):
- a. Increased risk for contracting STIs
 - b. Increased risk of Pelvic Inflammatory Disease due to device
 - c. Promotes adolescents to have multiple sex partners
 - d. Promotes unprotected intercourse
 - e. Smaller pelvic anatomy of adolescent not appropriate for IUD
 - f. Adolescents lack the maturity to be offered an IUD
 - g. Stimulates infertility
 - h. IUD insertion is physically and/or emotionally traumatizing
 - i. I do not have the knowledge to counsel
 - j. I do not have the skills to insert
 - k. It is not a common method prescribed in my clinic
 - l. I just do not like the device
 - m. Other (please specify):
- 18) What issues have you observed when considering prescribing an intrauterine device or subdermal implant to a healthy nulliparous, never sexually active adolescent? (select all that apply):
- a. Insurance reimbursement
 - b. Cost of device
 - c. Time
 - d. Device not available on site
 - e. Lack of clinicians available for same-day insertion
 - f. Waiting for test results (i.e. Papanicolaou smear, Sexually Transmitted Infection screen, or pregnancy screen)
 - g. Patient concerns
 - h. Parental concerns
 - i. Other (please specify):
- 19) My colleagues support the use of **subdermal implants** in adolescent patients:
- a. Yes
 - b. No
- 20) My colleagues support the use of **intrauterine devices** in adolescent patients:
- a. Yes
 - b. No
- 21) Preventing sexually transmitted infections is more important to me than preventing pregnancy in the adolescent population:
- a. True

- b. False
- 22) A female must experience childbirth before considering an intrauterine device as an appropriate method of contraception:
- a. Agree
 - b. Disagree
- 23) Briefly define a patient you consider to be an appropriate candidate for an intrauterine device or subdermal implant.
- 24) Briefly define a patient you consider **NOT** to be an appropriate candidate for an intrauterine device or subdermal implant. What criteria or characteristics excludes them?
- 25) Please list any resources you would find helpful to assist with counseling and prescribing the subdermal implant and/or intrauterine device to female adolescent patients (i.e. PowerPoint, podcast, skills training, etc.).
- 26) If evidence-based guidelines from American College of Obstetrics and Gynecologists, American Academy of Pediatrics, and Centers for Disease Control recommend an **intrauterine device/IUD** as a first-line contraceptive method for a nulliparous, healthy adolescent female, would this increase your likelihood of prescribing an **intrauterine device/IUD** to an adolescent?
- a. Yes
 - b. Maybe
 - c. No
- 27) If evidence-based guidelines from American College of Obstetrics and Gynecologists, American Academy of Pediatrics, and Centers for Disease Control recommend a **subdermal implant** as a first-line contraceptive method for a nulliparous, healthy adolescent female, would this increase your likelihood of prescribing a **subdermal implant** to an adolescent?
- a. Yes
 - b. Maybe
 - c. No

Additional Comments (free text box)

Thank you for your participation in this survey.

If you would like more information, please view the following evidence-based references:

- 1) Centers for Disease Control and Prevention, U.S. Selected Practice Recommendations for Contraceptive Use (2016):
https://www.cdc.gov/mmwr/volumes/65/rr/rr6504a1.htm?s_cid=rr6504a1_w

- 2) American Academy of Pediatrics, Policy Statement: Contraception for Adolescents (2014):
<http://pediatrics.aappublications.org/content/134/4/e1244>

- 3) American College of Obstetricians and Gynecologists, Committee opinion no. 539: adolescents and long-acting reversible contraception: implants and intrauterine devices (2012):
<https://www.acog.org/Resources-And-Publications/Committee-Opinions/Committee-on-Adolescent-Health-Care/Adolescents-and-Long-Acting-Reversible-Contraception>

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