

CREATING RECOMMENDATIONS FOR LONG ACTING REVERSIBLE
CONTRACEPTIVE USE FOR ADOLESCENTS

by

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As members of the DNP Project Committee, we certify that we have read the DNP Project prepared by Katie Strawn entitled Creating Recommendations for Long Acting Reversible Contraceptive Use for Adolescents and recommend that it be accepted as fulfilling the DNP Project requirement for the Degree of Doctor of Nursing Practice.

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DEDICATION

This project is dedicated to all the young women in the world and to the ones that support them.

To Zjahni, your strength and courage inspire me every day.

"A woman is like a tea bag—you never know how strong she is until she gets in hot water."

—Eleanor Roosevelt

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ABSTRACT

The purpose of this research project is to develop a clinical practice guideline for contraceptive counseling to include long acting reversible contraceptive (LARC) recommendations for the adolescent population.

LARCs, which include intrauterine devices and implants, are the top-tier contraceptive for nulliparous women yet they are only used in less than 6% of women under 19 years old. There is no LARC clinical practice guideline that addresses the adolescent's unique developmental and psychosocial needs that arise. A clinical practice guideline with adolescent-specific recommendations will strengthen counseling especially for long-acting reversible contraceptives.

The review of literature searched PubMed, CINHALL, National Guideline Clearinghouse, Google Scholar and the Cochrane Library using search terms "LARCs," and "contraceptive counseling." The search yielded over 35,000 results; titles and abstracts were reviewed using pre-determined inclusion and exclusion criteria. The final source documents included forty-eight applicable manuscripts, which were graded using the United States Preventative Task Force (USPSTF) scale. The evidence was then sorted by similar findings and practice recommendations. The findings were used to formulate practice statements, which were then input into the Bridge-wiz software. The program generated recommendations and assigned a strength rating, and the clinical practice guideline was written from these recommendations. Finally, four clinical experts were identified using snowball sampling; they each participated in the final appraisal using the AGREE II tool.

Based on the analysis of the review of literature, fifteen evidenced-based recommendations emerged. The recommendation topics included: best-practices for recommending LARCs, using

developmentally appropriate teaching, providing youth-friendly services, and eliminating potential barriers to LARC uptake in adolescents.

There are fifteen practice recommendations that increase adolescent uptake of LARCs. Limitations for the project included the absence of an internal review committee to grade the evidence and assign a strength to each recommendation. The use of Bridge-wiz software and the USPSTF evidence scale minimized bias.

Providers can facilitate use of LARCs among adolescents by using developmentally appropriate and comprehensive contraceptive counseling. If more adolescents chose a LARC as their primary form of contraception, then overall teenage pregnancies may decrease. Further research is needed to understand other barriers and possible interventions.

INTRODUCTION

In the United States, 49% of pregnancies are unintended (Center for Disease Control [CDC], 2015a). For teenagers, rates of unintentional pregnancy rise to 80% (CDC, 2015a). In both women and adolescents, 43% of unintended pregnancies are a result of incorrect contraceptive use (Guttamacher, 2015a; Kavanaugh, Frohwirth, Jerman, Popkin, & Ethier, 2013). Unplanned teenage pregnancy has negative social, medical, and economic implications for adolescents and their children. The cost of teen pregnancy is estimated to be between 9.4 and 28 billion dollars and is largely financed by U.S. taxpayers (Department of Health and Human Services [HHS], 2016). Almost half of all teenage mothers live at, or below, the poverty line, and 63% of teen mothers receive public assistance from programs such as Medicaid (National Conference of State Legislatures, 2014). Teen parents are also more likely to use social services, such as foster care, and they are more likely to be incarcerated at some point in their lives (CDC, 2015a). The high use of these and other public services are a tremendous cost to society. Teen parents also represent a loss in tax revenue opportunity due to their lower education levels and decreased income rates (CDC, 2015a).

Adolescent mothers are more likely to be underprivileged, uneducated, and have poorer health outcomes (East & Felice, 2014). For example, teenage pregnancy has a negative impact on the mother's education; only 50% will receive a high school diploma, and only 10% will receive a diploma from either a two or four year college (Interagency Working Group on Youth Programs [IWGYP], 2015). A study by East & Felice (2014) demonstrated that, on average, the highest academic level achieved by teen mothers is 9th grade. Possibly, as a result of low academic achievement, teen mothers are more likely to live in economically disadvantaged

neighborhoods (CDC, 2015a). In addition, adolescent mothers are also more likely to suffer from a range of mental health problems such as depression, substance abuse, and posttraumatic stress disorder (Hodgkins, Beers, Southammakosane, & Lewin, 2014). A classic study by Deal and Holt (1988) found that rates of depression doubled in African American teenage mothers; the depression followed them well into adulthood. Literature also suggests that there may be long term negative health outcomes in teen mothers, such as heart disease, cancer, and mental health problems (Hodgkins, Beers, Southammakosane, & Lewin, 2014; Irvien, Bradley, Cupples, & Boohan, 1997). Pregnant adolescents are also considered high-risk obstetric patients because of their increased risks of anemia, maternal mortality, infant mortality, and pre-eclampsia (Najati & Gojazadeh, 2010).

One in ten men will be a father by twenty years old (HHS, 2011). Often overlooked, teenage fathers also have negative outcomes as a result of pregnancy. Teen fathers are less likely than their male peers to graduate from high school, and only 50% will obtain their general education diploma (GED) by age 22 (HHS, 2011; IWGYP, 2015). As a result of their lower educational achievement, teenage fathers have lower income potential (HHS, 2011). One study found that on average teen fathers made \$20,000 annually, compared to males who became fathers as adults who made \$50,0000 annually (Mollborn & Lovegrove, 2011). Lastly, teenage fathers are more likely to end up incarcerated (IWGYP, 2015).

Teenage pregnancy can have long term negative effects on their children (IWGYP, 2015, Molborn & Lovegrove, 2011; Irvine, Bradley, Cupples, & Boohan, 1997). The children of teenage mothers have higher infant mortality rates, lower birthweights, and are less prepared upon entering kindergarten (IWGYP, 2015). They are also more likely to have behavioral

problems and chronic medical illnesses; they are more likely to be placed in foster care, and are also more likely to be incarcerated as an adolescent (IWGYP, 2015). These children have lower rates of academic achievement, are more likely to drop out of high school, and are more likely to become teenage parents themselves (IWGYP, 2015). In addition, children with teenage fathers have statistically lower cognitive and behavioral scores by age two (Mollborn & Lovegrove, 2011).

Available Knowledge

Local Problem. The United States has higher rates of teenage pregnancy when compared to all other industrialized countries (Kearney & Levine, 2012; CDC, 2015a). These pregnancies occur because of inconsistent or incorrect use or simply no contraception use at all (Chack, 2015). Thirteen percent of teenage couples report an inability to acquire a contraceptive (Chack, 2015). Thirty-one percent of parents with unintended pregnancies did not know they could get pregnant, and 24% of teen mothers choose not to use a contraceptive because of their partner's wishes (Chack, 2015).

The pediatric nurse practitioner is a primary resource and advocate for contraceptive counseling. These advanced practice nurses are able to screen and examine adolescents for possible contraceptive use. They are able to make recommendations for care, and initiate the patient's contraception of choice. NPs must advocate for teenagers and empower them to make the most informed decision regarding their methods of family planning. This project will assist all NPs in educating their patients on the best contraception for their circumstance.

Background

There are several forms of contraception available to adolescents, each comes with benefits and barriers. See Table 1 for an outline of each contraceptive's current usage, effectiveness and failure rates. The male condom is the most common form of contraception by American teenagers (Guttmacher Institute, 2015b). Based on "typical use" teenagers have an 18% chance of becoming pregnant with this method (Guttmacher Institute, 2015b). Condoms, as a barrier method, are able to protect against both pregnancy and sexually transmitted diseases. Other popular forms of contraception include the pill, transdermal patch, and the injectable Depo-Provera (Guttmacher Institute, 2015b).

A LARC is either the subdermal etonogestrel implant device, or an intrauterine device. There are four IUD designs approved for use in the United States: the ParaGard T-380A, the Mirena, Skyla, and the Liletta. The ParaGard is the only copper device approved for use in America (CAHC, 2014). The other three devices are hormonal uterine devices. IUDs are placed by a trained provider and can be removed by a provider at any time. Each device has a specific range of efficacy, but devices are approved for use between 3-5 years, with the exception of the ParaGard, which is effective for up to ten years. Eligibility criteria for each device are outlined in the World Health Organization 2015 Recommendations.

Table 1: *Contraception Comparisons*

Method	Failure rates with perfect use	Failure rates with typical use	Percent used at last intercourse
Implant	0.05	0.05	<5%
IUD (LNG)	0.2	0.2	<5%
IUD (Copper-T)	0.6	0.8	<5%
Injectable	0.2	6	16%
Pill	0.3	9	53%
Vaginal Ring	0.3	9	8%
Patch	0.3	9	16%
Diaphragm	6	12	No data
Sponge with spermicide	9	12	No data
Male Condom	2	18	59%
Female Condom	5	21	No data
Withdrawal	4	22	No data
Fertility Awareness	0.4-5	24	No data
Spermicides	18	28	No data
No method	85	85	7-14%

(Guttmacher 2015b; Welti, Wildsmith, & Manlove, 2011)

Long acting reversible contraceptives (LARCs) include intrauterine devices (IUDs) and the subdermal etonogestrel implant. The American College of Obstetricians and Gynecologists (2012) asserts that IUDs and the contraceptive implant are safe and effective forms of birth control for teenage mothers. Failure rates are very low as there is no daily, weekly, or monthly maintenance by the user. Several studies have shown a great deal of promise in decreasing teenage pregnancies with LARCs (Dodson, Gray, & Burke, 2012; Kohn, Hacker, Rouselle, & Gold; 2012). Pregnancy rates with either IUD or the etonogestrel implant use are 0.2-0.8% (CDC, 2015d). Teenagers also report a great deal of interest in LARCs, and report high satisfaction with this contraceptive method (Dodson, Gray, & Burke, 2012). More than two thirds of adolescents choose LARCs when counseled on all contraceptive options (Committee on Adolescent Health Care [CAHC], 2014). However, providers are not likely to recommend LARCs to adolescents for various reasons (Dodson, Gray, & Burke, 2012). Many providers are reluctant to recommend an IUD for nulliparous women (Wilson, Strohnitter, & Baecher-Lind, 2013; Luchhowski et al., 2014; Biggs, Harper, Malvin, & Brindis, 2014; Kohn, Hacker, Rouselle, & Gold, 2012). Reasons for this include: risk of sexually transmitted disease, anatomical considerations, and fertility concerns (Wilson, Strohnitter, & Baecher-Lind, 2013; Biggs, Harper, Malvin, & Brindis, 2014; Rubin, Campus, & Markens; 2014; Kavanaugh, Frohwirth, Jerman, Poplin, & Ethier; 2014; Kohn, Hacker, Rouselle, & Gold, 2012). 43% of polled medical directors believed that IUDs were inappropriate for use in women 15-19 years old (Greenburg, Makino, & Coles; 2013). 50% of surveyed pediatricians felt that abstinence was the preferred method of contraception for adolescents and fewer than 20% discussed IUDs with their teenage patients (Greenburg, Makino, & Coles; 2013). Only 32% of providers reported offering

any long acting contraceptive to teenagers, and only 34% of providers would recommend an IUD to a women not in a monogamous relationship (Greenburg, Makino, & Coles; 2013). Providers are more likely to recommend IUD placement if they receive some form of women's health training (Wilson, Strohnitter, & Baecher-Lind, 2013; Greenburg, Makino, & Coles; 2013).

There are several arguments and misconceptions surrounding IUD placement in adolescents. One concern is the potential increased risk of pelvic inflammatory disease (PID); however, this is only seen in the first twenty days of insertion (Guttmacher, 2015b; CAHC, 2014). A retrospective cohort study revealed that adolescents had no significant difference in complications such as those experienced during insertion, and PID rates were reported as low as 4.6% (Bayer, Jensen, Nichols, & Bednarek, 2012). Another cohort study found that, when compared with adults, teenagers with IUDs did not have increased STI rates, expulsion or removal rates (Ravi, Prine, Waltermaurer, Miller & Rubin, 2014; Ravi et al., 2014). Finally, a multicenter retrospective chart review of 2,523 women demonstrated no statistical significance between rates of expulsion, pregnancy, and PID in teenagers when compared to adults (Aoun, Dines, Stovall, Mete, Nelson, & Gomez-Lobo, 2014; Ravi et al., 2014). An outdated misconception is that IUDs may affect long-term fertility, but there is no evidence to support this claim (CAHC, 2014). There is also a misconception that the IUD may be more painful for adolescents due to their smaller anatomy. While pain is reported in over half of women who receive the IUD, this rate is not significantly more than adults (CAHC, 2014). Teal et al. (2015) found that there were no anatomic challenges to IUD placement in adolescents.

The most common criticism of both the IUD and implant is bleeding pattern changes, which can range from a heavier menstrual flow, occasionally seen with the Paragard, to

amenorrhea, which is not uncommon with the hormone intrauterine devices and implant (CAHC, 2014). The IUD, particularly the Paraguard may cause increased dysmenorrhea.

The subdermal etonogestrel (ENG) implant is roughly the size of a matchstick and can be inserted outpatient by any trained provider. The implant is effective against pregnancy for up to three years. Increased menstruation and cramping occurs in only 16.9% of women, and is often treated effectively with a short course of NSAIDS or oral contraceptives (CAHC, 2014). The most common reason for early discontinuation of the implant is bleeding, weight gain, and palpable foreign body intolerance (Berlan, Mixraji, & Bonney, 2016). An unexpected health benefit of the implantable contraceptive is the higher hemoglobin levels found in women who experience decreased menstrual bleeding (CAHC, 2014).

Despite the ACOG (2011) and CDC (2013) assertion that LARCs are safe and effective in adolescents, rates of insertion are very low and providers are still reluctant to recommend them as a first line contraceptive.

Problem Statement

In spite of CDC and ACOG recommendations, favorable risk profile, and effectiveness at reducing unintentional pregnancies, LARC use remains low among adolescents.

Purpose

The purpose of this DNP project was to develop clinical recommendations for LARC placement for adolescents. The American College of Obstetricians and consider LARCs a top-tier contraceptive device, with pregnancy rates of less than 1% per year, and a compliance rate of almost 86% (American Council of Obstetrics and Gynecology [ACOG], 2012). However, only 3-5.5% of teenagers use an IUD, and providers in the United States are not likely to suggest this

method of contraception (Mosher & Jones, 2010; Guttmacher, 2015b; Guttmacher, 2014; CDC, 2015c). Only 0.5% of teenagers use the implantable contraceptive (CAHC, 2014). In low income countries LARC rates are 37% and high income countries LARC rates are 42% (Joshi, Khadilkar, & Patel, 2015). There are many proposed reasons for this discrepancy; Eeckhaut, Sweeney, & Gipson (2014) gathered data on international contraceptive use and hypothesize that Americans are still mistrustful of IUDs as well as deterred by up-front costs. This DNP project examined the literature and make practice recommendations for LARC use in adolescents. This project has long-term implications for adolescent primary care and gynecology as well as pediatric reproductive health.

Study Question

What are evidenced-based recommendations for LARC placement in adolescents?

THEORETICAL FRAMEWORK AND SYNTHESIS OF EVIDENCE

Theoretical Framework

The purpose of this DNP project was to develop clinical recommendations and create a subsequent clinical practice guideline which outlines best practices for LARC use in teenagers. Doctor of nursing practice (DNP) projects examine health related issues and address potentially poor delivery of care (Christenbery, 2011). Nursing theories support and guided the DNP project in order to address patient care issues (Christenbery, 2011). The nursing theory for this project was the Johns Hopkins Nursing Evidenced-Based Practice Model (JHNEBP). This theory was chosen because it is a practical approach to applying evidenced based recommendations in a variety of clinical settings (Schaffer, Sandau, & Diedrick, 2012).

An article by Shcaffer, Sandau & Diedric (2012) outlines the three components of the JHNEBP: the practice question, evidence, and translation. The first step is to identify a study question or problem statement; this step is often done as a team approach. The second step is to review the available literature for applicable evidence. The literature is then summarized, critiqued and assigned a strength rating. The final step of the JHNEBP is the translation phase, which incorporates recommendations from the literature to develop an action plan and communicate findings.

The JHNEBP was used by Kelli, Huggins, and Pugh (2012) to establish recommendations for alternative light sources during sexual assault examinations. Their practice questions was, *Does the Wood's lamp or an alternative light source positively identify trace biological evidence containing DNA in patients reporting sexual assault?* The researchers then reviewed the literature and graded the evidence based on the JHNEBP model. Finally, the researchers created an action plan from the literature that put their recommendations into practice.

The JHNEBP model will guide this project. The first step, developing the practice question, involves refining the subject area and identifying a gap in care that needed to be addressed. A review of literature, see below, will confirm the research question has gone unanswered in the literature. The second step, literature analysis, is the most comprehensive component of the project. The purpose is to find clear evidence to support recommendations for best practice. Finally, the last step in the JHNEBP is to translate the evidence into a CPG for providers to use in daily practice.

Concepts

There are multiple reasons for seeking contraception. This project will only examine the use of LARCs in the setting of routine placement as a consideration for family planning. This project will not provide guidelines for placement of LARCs as a form of emergency contraception following an abortion or live birth.

For the purpose of this project, providers are defined as health care professionals who are within their scope of practice to make a referral or provide medical recommendation to have a LARC placed. In this project they include pediatric nurse practitioners, family nurse practitioners, nurse midwives, family practice and internal medicine physicians, obstetricians, gynecologists, physician's assistants, and pediatricians.

This project defines an adolescent as a female age 14-19 years. This definition is based upon the CDC's classification of teenage pregnancy as one that occurs in a female between 14-19 years (CDC, 2015a). A young teenage mother is defined as 10-14 years old, but this population is not included in the scope of this project.

A clinical practice guideline is a tool for providers which translates current scientific evidence into best practice (Rosenfield & Shiffman, 2009). A guideline should decrease disparities in patient care as well as decrease ineffective or harmful interventions (Rosenfield & Shiffman, 2009).

Preliminary Review of Literature

The purpose of the literature appraisal is to examine current reviews, literature, and clinical practice guidelines which address adolescent specific recommendations for LARC placement. First, it was important to determine if there are existing guidelines that can answer the research

questions. The CPG review began with a search of the PubMed, Google Scholar, the Cochrane review, and the National Guideline clearing house. The key terms used were “long acting reversible contraceptive” “intrauterine device” and “implantable contraception.” In PubMed and Google scholar additional search terms included “clinical practice guidelines.” The inclusion criterion is: nulliparous subjects between 15-19 years, any form of LARC as an intervention for pregnancy prevention, available in English, and available full text. The scope of the search was defined as: reviews and CPGs with nulliparous adolescents as the primary population and LARCs as one intervention for primary pregnancy prevention.

PubMed revealed no CPG results. Three guidelines were discovered using Google Scholar; one from the National Guideline Clearinghouse, and one from the National Institute for Health Care Excellence (NICE, 2013), which is a comprehensive CPG used in the United Kingdom and one from the CDC (2013). The third guideline was done by the ACOG (2011). None of these guidelines addresses adolescent specific recommendations in any detail.

The search of the National Guide Clearinghouse generated two guidelines that met inclusion criteria (NCOG, 2011) and (Gavin et al., 2014). The Grimes et al. (2007) guideline was found in the reference section of the Gavin et al. (2014) CPG. The Cochrane Library search, done without key words, narrowed the search using topic filters: gynecology-contraception-general. This search revealed two relevant reviews. There were seven clinical practice guidelines in total that address, in part, adolescent specific recommendations.

Synthesis. The CPG literature review revealed several recommendations applicable to nulliparous adolescents received LARCs for contraception. See Appendix A for the evidence synthesis from the literature review. There is substantial literature to support the safety of LARCs in nulliparous adolescents (Grimes, Lopez, Manion, & Schultz, 2007; Gavin et al., 2014; CDC, 2013; ACOG, 2011; NICE, 2013). However, in the United States, rates of LARCs remain low in the nulliparous adolescent and adult populations (CDC, 2013; ACOG, & Gavin et al., 2007).

Many of the recommendations were for women of all ages, but there were some recommendations that addressed adolescent specific concerns such as the higher risk for STD's, examination concerns, and counseling techniques. Adolescents are considered a high risk population for STDs; many providers believe that this exempts them from LARCS, specifically IUDs. Guidelines by ACOG, CDC, NICE, Grimes, and Gavin et al. recommend youth at risk for STDs be screened, tested and treated for STDs. They can receive the IUD on the same day. Along that line, prophylactic antibiotics for PID prevention are no longer suggested (Grimes et al, 2007; ACOG, 2011; NICE, 2013; CDC, 2013; & Gavin et al., 2013). Due to the confidentiality and secrecy of many adolescents with respect to contraceptives, it is desirable to receive an intervention at the same time as the exam and counseling. The literature supported same-day contraception; several guidelines recommended placement without invasive testing, lab work or examination (CDC, 2013; NICE; 2013; ACOG, 2011). Adolescents can safely receive any LARC at any point during their menstrual cycle and do not need pregnancy testing unless screening reveals there is high risk for pregnancy (ACOG, 2011; CDC, 2013, & NICE, 2013).

The guidelines discussed measures that can increase adherence to LARCs and safe use of dual contraceptives with condoms for those at high risk of STDs (CDC, 2013; NICE, 2013; ACOG, 2011). Guidelines advise providers to discuss potential side effects of LARCs including bleeding irregularities and possible dysmenorrhea (Oringanje et al., 2016; ACOG, 2011; Grimes et al., 2007). Two guidelines suggested that closer follow up with adolescent patients may decrease early discontinuation of LARCs (CDC, 2013; Lopez et al., 2016).

Literature Strengths

The literature strongly supported the use of LARCs in nulliparous women. The review provided evidence through CPGs and reviews that LARCs are safe in adolescents and gave recommendations for contraceptive counseling that supports the youth's need for minimal visits to protect confidentiality.

Weaknesses

The examined literature was very strong; it contained multiple meta-synthesis' containing well-designed clinical practice guidelines. The weakness of the literature was primarily publication age. The Grimes et al. (2007) CPG is almost ten years old and the ACOG (2011) is just over five years old. Ideally, the literature should contain the most up to date evidenced-based practices. The other weakness identified was the lack of reference lists in the Oringanje et al. (2016) and the Lopez et al. (2016) systematic reviews. This decreases the overall transparency and strength of the reviews.

Limitations

The review was limited by the narrow search, which included only clinical practice guidelines and Cochrane library reviews. Due to the large volume of literature pertaining to LARCs, the

search strategy focused only on large reviews and guidelines, which have already reviewed much of the literature. However, the newest trials and research are not captured using this method. Subsequently, specific knowledge gaps in the initial review will require further research to illicit any further adolescent specific recommendations.

Knowledge Gaps

The largest gap in the literature and CPG databases are comprehensive, developmentally-sensitive LARC recommendations for adolescent. While there are a few recommendations, as discussed in the synthesis, there is still a need for further evidence-based knowledge. The unique challenges of adolescents, along with their high risk of unintended pregnancy, makes it imperative for interventions that meet the distinctive needs of this vulnerable population. It was important to develop a CPG that addresses the unique contraceptive challenges of adolescents as well as discredits the common myths; the goal is to decrease variation in care and practice using current evidence-based recommendations. Topics that required further research include: barriers related to finances, types of developmentally appropriate counseling, efficacy of mental health screenings, how to address concerns regarding placement pain, confidentiality in billing and documentation, and the most appropriate LARC for adolescents. To build a comprehensive clinical practice guideline for adolescent LARC use these issues must be reviewed individually to elucidate further recommendations. The overall benefit of this CPG is increased LARC use among teenagers as well as lower rates of discontinuation rates of these devices. This should lead to an overall reduction in unplanned teenage pregnancy.

METHODOLOGY

Based on the preliminary review of literature, the following research questions guided the comprehensive literature search:

- Are there specific questions or issues primary care providers should address with adolescents during contraceptive counseling?
- What are barriers and facilitators of LARCs with adolescents?
- What are barriers and facilitators of LARCs for providers working with adolescents?
- What communication techniques should providers use when discussing contraceptives with adolescents?

These questions were developed after the preliminary literature review revealed a potential gap in care with current clinical practice guidelines containing little to no adolescent specific recommendations. The project design was developed using the Johns Hopkins Nursing Evidenced-Based Practice Model (JHNEBP) framework. The final step in the JHNEBP is translation of evidence into practice (Schaffer, Sandau, & Diedric, 2012). Developing a comprehensive CPG based on the literature is the final step in the JHNEBP framework.

Methods Used to Collect and Select the Evidence

The above research questions guided the search. Inclusion criteria included: adolescent subjects, nulliparous subjects, research or articles examining the effects of contraceptive counseling strategies on LARC uptake, research took place within the United States or the United Kingdom. The exclusion criteria included: research subjects that do not include adolescents, findings that are not applicable to adolescents in primary care, non-English publication, statistics reports, and using the LARC as a postpartum contraceptive intervention. The search included the following

databases: PubMed and CINHAL. The researcher also searched through Google Scholar for any grey literature.

CINHAL. Searches occurred between October 2015 and October 2016. There were two searches. The first used key words “adolescent contraceptive counseling.” This revealed thirteen results. Of these results, abstracts were screened for inclusion criteria. Three of the thirteen studies met criteria and were included in the evidence table. One meta-analysis within this search was further explored for related studies and revealed five other studies.

The second search used the key words “LARC adolescent.” This search yielded eight results. Abstracts were screen for inclusion and exclusion criteria and found four relevant studies. From these studies one was a meta-analysis that was further search for related literature, which revealed four additional relevant studies.

PubMed. PubMed searches occurred between October 2015 and October 2016. There were two searches. The first used key words “adolescent contraceptive counseling,” yielding 1,483 results. The following filters were applied: clinical trials, clinical study, guidelines, meta-analysis, randomized controlled trials, reviews, twin studies, free full text, and female subjects’ ages 0-18 years old. This revealed 285 results. Each abstract was reviewed for relevance. Each study’s full text was reviewed for inclusion and exclusion criteria and twenty two studies were included in the evidence table.

The second PubMed search used the same filters as the first but used key words “LARC adolescents.” This brought up thirty three studies, which were screened for relevance and inclusion criteria. Five were included in the evidence table.

Google Scholar. Google Scholar: A search of grey literature using Google Scholar was done from September 2016- October 2016. The first search used key words “adolescent” and “contraceptive counseling” giving >35,000 results. The < 5 years since publication filter limited the results to 17 studies. Studies were further eliminated if the study was inaccessible, irrelevant, or already found in the previous searches of PubMed and CINHAL. Two studies met all inclusion and exclusion criteria and were added to the evidence table.

A second search of Google Scholar was done using key words “LARCS adolescents” with 2,390 results. The results were sorted by relevance. The <5 years since publication filter was applied bringing the results to 1,350 results. The first 6 pages of results were reviewed until the results were no longer relevant to the search terms.

The final evidence table contained forty-eight documents. See the CPG in Appendix C to view the evidence table. The evidence was then sorted by similar findings and practice recommendations. See the Results section for the list of recommendations. The absence of any further non-duplicitous results was a demonstration of information saturation.

Developing the Guideline

There were several useful tools found during a brief search of similar papers on CPG development. The GRADEpro guideline development tool and Building Recommendations in a Developers Guideline Editor software (BRIDGE-WIZ) were used in order to build a complete guideline using a fully transparent process. The GRADEpro software, endorsed by the Cochrane Collaboration, is a user-friendly tool, which uses the GRADE system (Grading of recommendations, assessment, development and evaluation) (GRADEpro, 2016). The GRADEpro software provides a step-by-step process for grading the literature, which includes

tasks and timelines (GRADEpro, 2016). The purpose of this software is to create a summary of findings table from the review of literature and assist users in organizing the evidence into recommendations (GRADEpro, 2016). The BRIDGE-WIZ program is a template that allows the author to input the evidence GRADEpro into a formal CPG recommendation. This program was created by the Yale School of Medicine; BRIDGE-WIZ prompts the user to answer a series of questions and then creates a clinical practice guideline using formatting recommendations from the Cochrane Collaboration (Wald et al., 2013). This program ensures the CPG is complete, as well as written in a standardized format that is compliant with guideline quality assessments (Shiffman, Michel, Rosenfield, & Davidson, 2011). Using both the BRIDGE-WIZ and GRADEpro programs allowed the author to complete a thorough clinical practice guideline with minimal user bias. Both programs are in the public domain and are accessible to individuals free of charge; users must agree to separate licensing agreements prior to downloading the programs (GRADEpro, 2016; Yale.edu).

Grading the Literature

The research above research questions were manually entered into the GRADEpro software. From there the software prompts the user to enter each supporting review or research article for each question. GRADEpro will automatically built an evidence table (GRADEpro, 2016). The primary researcher then compared each manuscript to the United States Preventative Task Force grading scale, which assigns a grade of I-a through III.

Once each clinical question has been answered by the literature, the researcher developed best practice statements. These statements were input into the BRIDGE-WIZ program, which allows for a streamlined, transparent process that minimalizes researcher bias when building the

recommendations and assigning each a strength based on preponderance of risks, benefits, potential harm, and cost. During outside testing, users found that the BRIGE-Wiz program developed clear, transparent, and implementable recommendations (Shiffman et al., 2012, p. 94).

Building the Guideline

The guideline was built using the GRADEpro CPG template. The draft was then compared to guidelines with similar subject matter to ensure that any content inclusions or exclusions were congruent with industry standards.

External Review

Clinical experts were invited to provide feedback on the CPG. Experts were identified using snowball sampling. Eleven experts were identified and invited, of these eleven, four clinical experts accepted and participated in the appraisal. Each expert provided a conflict of interest disclosure statement. See the CPG in Appendix C for disclosure statements and a curriculum vitae or resume from each expert.

An external review by clinical experts was done to decrease internal biases and provide feedback to the researcher. The reviewers were chosen and invited based on their experience with the population and interventions. The appraisal process used the online AGREE II instrument, which is a widely-used, validated tool used to assess a guideline and is in the public domain (Brouwers et al., 2010). The tool contains 23 questions and covers the following domains: scope and purpose, stakeholder involvement, rigor of development, clarity of presentation, applicability, and editorial independence (AGREE Next Step Consortium [ANSC], 2009). The construct validity of the tool, done with a MANOVA and ANOVA analysis, found

the tool was sensitive enough to detect difference in high and low CPG quality ($p < 0.05$) (Brouwers et al., 2010).

Each reviewer received an electronic invitation to review using the online AGREE II tool, which contained the CPG and the AGREE II manual, along with the online appraisal form. The reviewer's scores and comments were tallied automatically using the AGREE II provided software. The reviewer's assessments and final scores are available in the Appendix D. Reviewers received a \$25 gift certificate after signing the conflict of interest disclosure statement and completing the appraisal. This gesture of gratitude was not disclosed prior to completion of the appraisal and COI disclosure and was funded privately by the researcher.

Data Collection

All data collection, including supporting literature and reviewer assessments was kept on a designated hard drive and stored for the required amount of time as set by the University of Arizona Institutional Review Board (IRB). When not in use, the hard drive was kept in a locked cabinet. The literature review of the research questions, the guideline development and the appraisal process took approximately three months.

RESULTS

Results of the Literature Analysis

The forty-eight manuscripts were sorted for similar results and practice recommendations, and thirteen themes emerged. Once the themes were formulated into practice recommendations there were nine strong recommendations and four weak recommendations. Each recommendation is discussed in detail below.

- I. *It is recommended that providers first establish and maintain rapport with their adolescent clients.* Evidence Quality: High; Recommendation Strength: Strong Recommendation

The recommendation was made based on the 2014 CDC recommendations for family planning services. In addition, the importance of a strong provider/patient relationship is supported in the meta-analysis by Zapata et al. (2015) and the 2015 American Academy of Pediatrics technical report. A descriptive study by Brown et al. (2013) found that many clients valued a friendly relationship with their provider and appreciated subjective opinions on contraception from their provider.

Establishing a relationship with clients, particularly adolescent clients, builds trust with the patient. Adolescents depend on medical providers to give them reliable information and support their medical decisions. Contraception discussions and decisions can be a difficult and uncomfortable conversation for adolescent clients, but a strong relationship with their provider can help facilitate a candid discussion regarding the patients' sexual health.

- II. *It is recommended that providers educate patients on the safety of LARCs in medically eligible, nulliparous adolescents during contraceptive counseling.* Evidence Quality: High; Recommendation Strength: Strong Recommendation.

This recommendation is based on the 2014 CDC guideline for quality family planning services as well as support from the WHO (2015) report and the ACOG (2013) recommendation. LARCs are safe for adolescents as well as nulliparous women (ACOG, 2013; WHO, 2015).

LARCs are proven to decrease adolescent pregnancies, birth, and abortions (Diedrich et al., 2015). However, many clients, providers and parents are not educated on the safety of LARCs for adolescents, leading teens to choose less effective methods of contraception. Parental

involvement in contraceptive counseling is not addressed in this guideline, but it is worth noting that LARC safety is an important message for parents as well as clients. A cohort study with 66 participants found that most mothers do not feel LARCs are appropriate for use in adolescents (O'Rourke-Suchoff et al., 2015).

- III. *It is recommended that providers clarify the efficacy of each contraceptive option in terms of perfect use versus typical use (Evidence quality: Moderate; Recommendation strength: Strong Recommendation) AND it is recommended that Providers recommend LARCs as the first choice for adolescent contraception (Evidence quality: Moderate; Recommendation strength: Strong Recommendation).*

Quality of Evidence: LARCs are the first choice for contraception in adolescents according to the American College of Obstetrician and Gynecologists (2013), and the American Academy of Pediatrics (2015). Providers should discuss efficacy with their patients, as this was determined to be an important factor for adolescent contraceptive choice based on expert opinions in articles by Jaccard et al. (2013), Eliscu and Burnstein (2016), Hillard (2013), and Potter et al. (2015). Descriptive studies by Brown et al. (2013) and Schmidt et al. (2015) found that adolescents placed efficacy as the most important variable when choosing a contraceptive method. Surveys by Bharadvaj et al. (2012) (n=194), and Gomez et al. (2014) (n=382), cohort studies by Romero et al. (2015) (n=616,148), Peipert et al. (2012) (n=9,256), and O'Neil-Callahan et al. (2013) (n=6153) all found that LARCs were chosen more often if providers recommended them to clients and educated patients on efficacy. The large retrospective cohort research done as part of the CHOICE study found that when providers discussed the most effective contraceptives first, as well as provided contraceptives at no cost, there was an increase

in LARC method uptake and a subsequent decrease in teen pregnancies, births, and abortions (Romero et al., 2015).

Contraception efficacy is based on perfect use and typical use. Many forms of contraception, including condoms, oral contraceptives, the ring and the intradermal patch, are significantly more effective if they are used correctly. Efficacy for many methods relies is user-dependent. For various reasons, adolescents are not always able to follow perfect use. LARCs eliminate user-error; their efficacy is unaffected by typical and perfect use. This leads to overall user satisfaction and longer continuation rates of contraceptives.

- IV. *It is recommended that providers discuss contraception at every visit (Evidence quality: High; Recommendation strength: Strong Recommendation) AND it is recommended that providers include an updated or new health history during every clinic visit with an adolescent (Evidence quality: High; Recommendation: Strong Recommendation)*

This recommendation is based on the CDC recommendations of youth friendly services as well as the recommendation of the American Academy of Pediatrics as seen in the technical report prepared by Ott et al. (2015). In addition, a retrospective cohort study by Kharbanda et al. (2014) (n=1600) found that in order to increase LARC uptake, providers should address contraceptives with adolescents every visit. Furthermore, a classic prospective-randomized trial by Berger et al. (1987) found that discussing contraception with adolescents does not increase the likelihood that the child will engage in sex. It also found that providing contraceptive counseling to sexually active teens significantly increases contraceptive use.

A current health history is helpful for the provider to make informed recommendations for contraceptives. The sexual health history may also illuminate other health concerns or high risk

behaviors that should be addressed by the provider. While additional counseling and screening is time consuming, it is part of essential preventative care, and can lead to an overall reduction in health service utilization by the client.

- V. *It is an option that clinics and/or providers offer confidential services and the right to consent to adolescent patients within the confines of state, federal, and local law. Evidence Quality: Moderate; Recommendation Strength: Weak Recommendation)*

This recommendation was made based on the 2014 CDC recommendations for confidential adolescent services. The American Academy of Pediatrics Technical Report cites confidentiality as a cornerstone of youth-friendly services (Ott et al., 2015). Confidential medical care and counseling is very important to adolescents. A randomized controlled trial by Ford et al. (1997) (n=562) found that making an assurance of confidentiality and conditional confidentiality increased adolescents likelihood to disclose sensitive information and seek future health care.

There are state and federal laws that protect adolescents' right to confidential services. However, confidential billing practices and individual clinical policies are not consistent. Every provider should understand privacy implications for each patient. The evidence suggests that if teens are given an assurance of confidentiality than they are more likely to seek medical services and discuss sensitive subjects with their provider. When adolescents are confident of their confidentiality they will be more likely to discuss and obtain contraception, leading to decreased teen births, pregnancies, and abortions.

- VI. *It is an option that providers and clinics incorporate visual aids during contraceptive counseling with adolescents. Evidence Quality: Moderate; Recommendation Strength: Weak Recommendation.*

A systematic review by Pazol et al. (2015) found fourteen different studies that examined the effects of visual education materials on an adolescent's knowledge of contraception and their decision making process. The studies examined various visual aids including written, audio, and video aids. Six of the statistically significant studies were randomized controlled trials with low risk of bias, which revealed that visual aids improve adolescent's knowledge of contraception and helped them in the decision making process. Descriptive studies by Brown et al. (2013) and Kavanaugh et al. (2013) both found that adolescents believed visual aids were helpful during contraceptive counseling. There is insufficient evidence to determine which type of visual aid is most effective for contraceptive counseling.

Providers may not have the time to answer all of the patient's questions, and may not be trained in developmentally appropriate counseling techniques. Visual aids are proven to increase adolescents' knowledge of the various contraceptive choices, and provide a way to offer education using developmentally appropriate language. This may help the client make an informed decision regarding LARCs. While visual aids may be an extra cost for clinics, they can help initiate a conversation on contraception. The cost of these education materials does not compare to the overall healthcare cost of unintended pregnancy.

- VII. *It is recommended that Providers incorporate motivational interviewing* (Evidence quality: High; Recommendation strength: Strong Recommendation) *AND it is an option that Providers use shared-decision making when counseling adolescents on LARCs.* (Evidence quality: Low; Recommendation strength: Weak Recommendation).

A meta-analysis by Wilson et al. (2015) found two randomized controlled trials that demonstrated motivational interviewing with adolescents is an effective strategy for

contraceptive counseling. Motivational interviewing was particularly effective for helping adolescents choose more effective contraceptives such as LARCs. A descriptive study by Dehlendorf et al. (2013) found that shared decision making is the favored communication method, but it is also the least likely communication style to be used with adolescents as providers are more likely to use an authoritarian communication style with younger clients. A cross-sectional survey by Donnelly et al. (2014) found that providers and adolescents often have a discordance in priorities for contraception, causing frequent communication barriers.

Shared decision making allows the provider and client to discuss contraceptives while allowing the client to make an autonomous decision. Motivational interviewing can help the provider assess the adolescents' willingness to change or adopt a behavior. It can help the provider explore the client's perception of LARCs, their perceived barriers and facilitators to contraceptives and help the client problem solve. Motivation interviewing allows the client and provider to engage in shared-decision making, with the provider helping guide the adolescent to choose the most effective contraceptive that meets their personal criteria.

- VIII. *It is recommended that providers incorporate anticipatory guidance during initial contraceptive counseling which includes: correct use of method, required follow up, potential side effects, non-contraceptive benefits, potential pain with insertion and continued use, possible changes in bleeding patterns, as well as how and when to discontinue.* Evidence Quality: High; Recommendation Strength: Strong Recommendation.

The positive effect of anticipatory guidance during contraceptive counseling is identified in one randomized controlled trial Harper (2015) (n=1500). The cohort studies by Winter et al. (1991) (1,261) found extensive patient education was an important part contraceptive counseling.

A retrospective cohort study by Rociotti et al. (2015) (n=276) found that the most likely reasons for early discontinuation of LARCs was bleeding, pain, and cramping and concluded that women should be counseled in side effects prior to insertion. The importance of adolescent patient education is further demonstrated in a large, multi-center retrospective chart review by Aoun et al. (2016) (n=2523), which found that young women are more likely to prematurely discontinue LARC if they did not receive comprehensive counseling prior to insertion. A descriptive study by Schmidt et al. (2015) (n=43) found that adolescents wished they were given more information on pain with insertion and continuation. Anticipatory guidance for adolescent contraceptives is also discussed in several expert opinion papers including Eliscu et al. (2016) and Jaccard (2013).

Anticipatory guidance is a fundamental part of any adolescent clinic visit, and providing guidance for contraceptives should be a routine component of contraceptive counseling visit. Making an informed decision on contraception is critical to avoiding patient dissatisfaction and premature discontinuation of any contraceptive method. Once a LARC is discontinued the patient may choose to forego contraception based on their negative experience or opt for less effective contraceptive methods.

- IX. *It is recommended that Clinics and providers provide youth-friendly contraceptive and reproductive health services to clients as defined by the CDC's thirty-one evidence-based clinical practices when providing primary care to female adolescents of reproductive age.*

Evidence Quality: High; Recommendation Strength: Strong Recommendation.

A full review of literature was not done as these practices are based on the CDC's 2014 evidenced-based, youth-friendly reproductive clinic practice recommendations. A meta-synthesis and study by Romero et al. (2015) examined 51 separate clinics and found that health centers

who incorporated the 31 youth friendly practices saw an increase in the use of more effective contraceptive methods as well as higher adolescent patient satisfaction. The Romero et al. synthesis guided the development of the CDC's 2014 recommendations. See the CPG in Appendix C for a full list of youth-friendly services.

Youth-friendly clinics attempt to overcome common barriers to contraception such as location, transportation, cost, multiple contraceptive initiation visits, and medically unnecessary and medically invasive exams. These clinics bring education and services into the community through outreach programs. However, it can be costly to deliver some components of these services such as extending clinic hours and providing low or no cost contraceptives. In spite of increased costs to clinics, the overall costs of care are sustainable with the introduction of effective contraceptives as well as cost saving measures which are included the CDC 2014 recommended practices. Medicaid data from 2004-10 demonstrates that LARCs demonstrate a decrease in health care costs long term despite the high upfront costs of providing LARCs (Laliberte et al., 2014).

- X. *It is recommended that the provider assess the psychosocial needs of the patient during contraceptive counseling.* Evidence Quality: Moderate; Recommendation Strength: Strong Recommendation.

A systematic review by Zapata et al. (2015) found several studies that demonstrate moderate to high patient compliance if psychosocial needs are addressed during contraceptive counseling. The expert opinions by Jaccard et al. (2013) supports providers discussing each client's individual social-behavioral factors. Levy et al. (2015) used a mixed methods analysis (n=342) to determine that social factors are an important influence on an adolescent's

contraceptive choice. A descriptive study by Minis et al. (2014) (n=67) analyzed transcripts of contraceptive counseling and found LARC continuation was more likely if the client received counseling that addressed lifestyle factors, sexual behavior patterns, and contextual influences of LARCs.

When the provider explores the psychosocial needs of the client they gain valuable information on the patient's personal conflicts with LARCs. Social norms, stigma, sexual preferences, and a client's self-image can all affect an adolescent's contraceptive choice. Social needs and concerns are particularly important to the adolescent client (Jaccard et al., 2013). In one study by Levy et al (2015) teens mentioned social influences in 42% of contraceptive counseling visits. The young client may have undisclosed social norms that may prevent her from chooses a more effective method; this information is important for the provider to know and address in order to help the client make the best choice of contraception.

- XI. *It is an option that providers or clinic staff discuss the cost of LARCs* (Evidence quality: High; Recommendation strength: Weak Recommendation) *AND it is an option that Providers or clinic staff provide LARCs at low or reduced cost to adolescents when discussing contraceptive options* (Evidence quality: High; Recommendation strength: Weak Recommendation)

A survey by Kavanough et al. (2013) (n=584) found that cost was a barrier to adolescents choosing LARCs. The CHOICE cohort study (n=9,256) found that when offered LARCs at no cost, adolescents were more likely to choose more effective methods, which led to an overall decrease of teenage pregnancy, births, and abortions. Other cohort studies used the data gathered from the CHOICE project and validated the importance of offering LARCs at no cost (Peipert et

al., 2012) (n=9,256) and Secura et al. (2014) (n=1,404). As a part of youth-friendly services, the CDC recommends providing contraceptives at reduced cost.

The cost of LARCs is often cited as a barrier by young patients, and youth are more likely to be uninsured and have limited financial resources. LARCs are more expensive upfront than other methods including: oral contraceptives, intradermal methods, and condoms (Laliberte et al., 2014). If clinics can offer low or no cost LARCs, than adolescents will be more likely to adopt these methods and decrease unintended pregnancies. If a clinic is unable to provide low cost LARCs than they should still address the costs up front, and providing the teen with outside resources.

XII. *It is recommended that Providers screen for anxiety and depression*

at all contraceptive counseling visits Evidence Quality: Moderate; Recommendation

Strength: Strong Recommendation.

Stidham et al. (2013) conducted a longitudinal cohort study (n=689) and found that young women with symptoms of depression or anxiety are more likely to have inconsistent contraceptive use. A cross-sectional cohort study by Francis et al. (2015) (n=220) revealed that adolescents with depressive symptoms are more likely to choose LARCs regardless of race, ethnicity, or education.

Adolescents with symptoms of depression and anxiety are more likely to have inconsistent contraceptive use. This makes them excellent candidates for LARCs. Screening for depression may also have non-contraceptive related benefits.

- XIII. *It is recommended that Providers screen for intimate partner violence (IPV) at every contraceptive counseling visit* Evidence Quality: High; Recommendation Strength: Strong Recommendation.

A full literature review was not done as the American College of Obstetrics and Gynecology (2013) recommends that providers screen every adolescent at every clinic visit for intimate partner violence.

IPV may involve reproductive and sexual coercion. Reproductive coercion is most likely to manifest as contraceptive sabotage and pregnancy pressure and coercion. At least 25% of adolescent females who become pregnant report they experienced pregnancy coercion and felt they needed to hide evidence of contraception (ACOG, 2013). Providers must advocate for contraceptive methods that are easy to conceal and difficult to remove. The ACOG recommends the Copper IUD with trimmed strings to make them undetectable to the partner; the safety of this practice was not evaluated as a part of this recommendation.

- XIV. *It is recommended that providers obtain training opportunities on LARC counseling, insertion, and discontinuation practices if providing primary care to adolescents of reproductive age.*

Evidence Quality: High; Recommendation Strength: Strong Recommendation.

A survey of 430 physicians found that only 30% of providers provide LARC recommendations; however, providers who received some form of women's health training were significantly more likely to prescribe a LARC for adolescents (Greenberg et al., 2013). A randomized controlled trial by Harper et al., 2013 (n=816) gave LARC training to providers and saw an increase in LARC uptake among adolescent patients. A systematic review of

Arrowsmith et al. (2012) found six studies that showed an increased use of the Copper IUD when providers were educated on counseling, education, and given device training. An article by Atkin et al. (2015) cites two studies by Harper et al. (2013) and Lewis et al. (2013) for a combined total of 1,097 participants, who found that a lack of provider training on LARCs prevented providers from recommending LARCs to adolescents. A descriptive study by Rubin et al. (2013) discovered that providers cited knowledge gaps as a major barrier to recommending LARCs. A cohort study by Rubin et al. (2015) discovered that providers are more likely to recommend LARCs if they feel competent with LARC insertion, counseling and managing side effects.

There is substantial evidence to prove that many providers have inaccurate information on patient criteria for LARCs (Harper et al. (2013). This makes them less likely to recommend the more effective methods. Providers are more likely to recommend LARCs if they have received additional training on LARC side effects, and insertion techniques, and adolescents are 2.7 times more likely to consider a LARC if it is recommended by their provider (Fleming et al., 2010).

- XV. *It is recommended that providers assess a patient's current understanding and feelings regarding LARCs during contraceptive counseling* Evidence Quality: High; Rec. Strength: Strong Recommendation.

A survey by Hladky et al. (n=1,665) found that 61% of women underestimated the effectiveness of LARCs and over half poor knowledge of LARCs. Another survey by Stanwood and Bradley (2011) (n=190) found that many young women had inaccurate information on LARCs. A survey by Russo et al. (2013) (n=200) found that adolescents have many misconceptions of LARCs, many of which led to the adolescents reluctance to choose LARCs. A

descriptive study found that patients lack factual information on LARCs (Schmidt et al., 2015) (n=43). Finally, an article by Atkin et al. (2015) cited adolescents' poor understanding of LARCs as a primary barriers in acceptance.

Adolescents often get their information on contraception from unreliable sources such as peers and social media (Brown et al. 2013). Adolescents have reported the following myths: IUDs cause abortions, IUDs cause pelvic inflammatory disease, IUDs cause infertility, LARCs cause ectopic pregnancy, LARCs cause menstrual irregularities, IUDs are painful with insertion and continued use, LARCs cause weight gain, LARCs worsen acne, LARCs cause hair loss, IUDs do not fit into an adolescents uterus, LARCs cause osteoporosis, IUDs will get stuck in the uterus, IUDs can only be placed during menstruation, and LARCs are not recommended for adolescents (Russo et al., 2013). While some of these misconceptions may be true, in some circumstances, adolescents should be given the facts of LARCs in order to make an informed decision. It is not in the best interest of the patient for providers not to assume what the adolescent may know about contraceptive devices; having a frank discussion about young clients belief's and concerns with LARCs will dispel inaccurate information.

Limited Evidence Recommendations

The following two recommendations are based upon strong studies but do not represent evidenced-based practice without further research. They are included to encourage further exploration by the guideline's audience.

1. *Integrating technology into adolescent contraceptive counseling may increase LARC uptake*

Two studies examined the influence of technology on contraceptive counseling. The first, but Gilliam et al. (2014) (n=60) used a quality improvement project to introduce a waiting room

app that was designed to educate patients on LARCs. They found an increase in patients who expressed an interest in LARCs during their clinic visit. The Kofinas et al. (2014) study was a small (n=69 and 74) randomized controlled trial that found some evidence to suggest that using social media sites, such as Facebook, increases adolescent patient preferences for LARCs.

Many youth rely on social media and technology for a significant amount of information (Brown et al, 2013). Providers and clinics can use these information portals as a means to reach out and educate adolescents on safe and effective contraceptive methods.

2. *Using trained contraceptive counselors may increase LARC uptake among adolescents.*

A large prospective cohort study looked at rates of LARC placement and continuation when counseled by a provider (n=1,107) and when counseled by a trained contraceptive counselor who did not have any further health care training (n=6,530). Madden et al. (2013) did not find a statistically significant difference in LARCs uptake between the two groups.

Providers cite time in clinic for counseling as a barrier to LARC placement (Rubin et al., 2013 & 2015). The presence of trained contraceptive counselors would allow patients to still receive comprehensive counseling while reducing provider's clinic time. Counselors may also have the added benefit of a peer dynamic, which can lead to faster rapport and trust with clients.

External Review Results

The individual external appraisal results are listed in Table 2. The scores for each domain are illustrated in Table 3. The AGREE II tool does not provide an interpretation of the results; rather, the developer should compare domain totals to understand which domains are strongest and which domains need revision. The domain totals are tabulated by the below AGREE II formula.

Table 2: *External Appraisal Results*

Questions	Reviewer 1	Reviewer 2	Reviewer 3	Reviewer 4	Reviewer Comments
1	7	6	7	7	
2	7	6	7	7	
3	7	6	7	7	
4	6	7	1	5	- N/A - I think this could be emphasized a bit more
5	6	3	5	7	- It is a very clear layout in terms of arguments and evidence
6	7	6	7	5	- As above, I think “providers” is a very broad term and could be better defined
7	7	6	6	7	
8	7	7	7	6	
9	7	6	7	7	
10	7	7	5	5	- Was unable to find this information
11	7	6	7	7	
12	7	7	7	6	
13	4	4	4	5	- It will be according to documentation
14	5	3	7	4	
15	6	6	5	6	- They are overall specific but some feel a little redundant
16	7	6	7	5	- Some more discussion of how to help support an

					adolescent in LARC decision-making would be helpful, from the perspective of some criteria included of when not to recommend, for example
17	6	7	6	5	- It would be helpful to have a clear logarithm at the start before the discussion
18	7	7	7	6	
19	7	6	7	5	- More discussion on how it should be used by providers and implemented would be helpful
20	7	5	7	6	
21	7	5	3	5	- Not specifically found, though may not have been looking in the right places
22	7	7	7	6	- N/A
23	7	7	7	7	- N/A
	Yes	Yes with modifications	Yes with modifications		- Really just formatting changes
					- The guideline is very thorough though a bit redundant; to me it is a little

long to be real
useful for
basic
contraceptive
counseling; all
relevant data,
but too long to
read

- A few
modifications
would be
helpful-mostly
a short
summary,
with a one
page protocol.
-

Table 3. *Domain Totals*

Domain	Total
1. Scope and Purpose	96%
2. Stakeholder Involvement	74%
3. Rigor of Development	84%
4. Clarity of Presentation	83%
5. Applicability	84%
6. Editorial Independence	98%

Figure 1: *Calculating Domain Scores*

Obtained score (Sum of review scores) – Minimum possible score

Maximum possible score – Minimum possible score.

(Brouwers et al. 2010)

The AGREE II tool also allows the appraiser to provide feedback for each questions.

The CPG developer reviewed comments from the appraisers and made adjustments based on these comments. The post-appraisal changes included: a further discussion on medical criteria for LARC placement was added to the introduction, an implementation strategy was included, and a one page summary of recommendations for clinicians was included in the CPG appendix as a provider resource in the clinic setting.

Ethical Considerations

Several key ethical principles should be considered in any study (ABOR, 2016). While this project did not involve any human subjects, it was still important to consider such things as respect for person, beneficence, and justice. When developing clinical practice guidelines, the author must follow ethical principles to create a safe and trustworthy guideline (Fulda, 2014).

Respect for Persons. Every patient has the right to make an informed decisions, knowing the risks, benefits, and alternatives (Fulda, 2014). The guideline should address and quantify all potential risks and benefits (Fulda, 2014). When reviewing the literature, there is an obligation to mention the pros and cons of any recommendations. Every patient should be given the opportunity to understand all of their options before making any decisions. By fully researching these options, the CPG will provide the providers with expert information that they can pass along to their patients.

Adolescents are considered a vulnerable population; teens seeking contraception will have fears, misconceptions, and outside influences. This was an important consideration when creating the CPG. These patients have a right to treatment; however, there are also parents, financial implications, as well as clinic, state and federal regulations to consider. The CPG must addressed these unique concerns of the adolescent population. The review of literature investigated specific interventions that effectively respected and managed these vulnerabilities.

Beneficence. Beneficence in guideline development means the developer must create recommendations with the intent to do good for the patient (Fulda, 2014). In order to do so, the systematic review was thorough in an attempt to create recommendations that are free from bias and safe for the patient. In order to reduce hidden bias clinical experts reviewed each recommendation. However, even reviewers can have bias; therefore, each reviewer was required to disclose any conflict of interest (COI). The COI increased transparency of the guideline (Fulda, 2014). All reviews were with the AGREE II tool in order to decrease internal biases.

Guideline Adoption

The final item on the AGREE II is the reviewer's opinion of the overall guideline quality and their recommendation for guideline use (ANSC, 2009). Reviews also have the option of recommending the guideline with modifications (ANSC, 2009). Modifications will be reviewed against the literature and changes made if appropriate. If the guideline is recommended then it will be submitted to the National Guideline Clearinghouse for dissemination.

DISCUSSION

Summary

The review of each research question revealed fifteen recommendations for best practice. The search was comprehensive, using broad search terms and encompassed a large number of manuscripts to review. The AGREE II tool suggests having at least two clinical experts review the guideline, but recommends four to increase the strength of the appraisal. The CPG met and exceeded these recommendations with four clinical expert appraisals, each representing a different professional specialty. The domain with the highest ratings were *Scope* and *Editorial Independence*. The criteria for a high score in the *Scope* domain included: meeting guideline objectives, covering the research questions, and clear description of the guideline's intended population (Brouwers et al. 2010). The criteria for a high score in the *Editorial Independence* domain included: disclosure of funding and conflict of interests.

The final CPG seen in Appendix C contains the appraiser's feedback and suggested revisions. The only suggestion that was not incorporated was a request for a methodology logarithm; this was not done as it was outside the CPG developer's scope of knowledge.

Overall, the resulting clinical practice guidelines received high ratings from each appraiser, and each appraiser ultimately recommended the clinical practice guideline.

Limitations

The domain for *Stakeholder Involvement* received the lowest scores at 74%. This demonstrates a known weakness of the guideline; the guideline was an individual undertaking rather than having a committee with representation from all relevant professionals. This is considered standard practice for clinical practice guideline development. However, an internal review process was not done as the research and guideline development was part of a student's doctorate of nursing project, and was an independent process for education purposes. An internal review would strengthen the internal validity of the research.

The appraisal process would be stronger if, rather than snowball sampling based on the reviewer's experience, the researcher had approached clinical experts with similar research and publications.

Implications for Practice

There are several exciting and challenging practice implications for the clinical practice guideline. If implemented into daily practice, the provider may be able to approach each of their adolescent clients using best practice interventions. The literature demonstrates that these interventions are more likely to result in an adolescent choosing to use a LARC. This may lead to an overall reduction in teenage pregnancies, births and abortions, all of which continue to pose an important public health challenge.

The clinical practice guideline also represents a challenge to providers as they must examine their own practice and clinical setting and possibly make modifications. Additional

training on LARC criteria, placement, insertion, youth-friendly services, and motivational interviewing are all important interventions, but may be costly to the providers and clinics. Ideally, each recommendation should be followed by every provider; however, there is no indication that adopting select recommendations will not ultimately have the same positive outcome. Providers are encouraged to review the CPG, their practice, their population and their funding to see which recommendations are feasible, bearing in mind that many recommendations may have high upfront costs, but may represent significant savings to clinics and patients over time.

Future Research

The clinical practice guideline included two recommendations that were identified by the researchers as potentially strong best practices, but did not have strong enough evidence to support a formal recommendation. One potential provider practice identified was using social media platforms to send messages to adolescents regarding long active reversible contraceptives. This represents an intervention that can reach adolescents using common information sharing modalities.

Another possible intervention is the use of trained contraceptive counselors rather than providers to educate adolescents on their contraceptive options. These counselors could represent a possible solution to provider time limitations, potential clinic cost savings, and adolescent uptake of LARCs.

These proposed interventions, along with additional research on provider attitudes towards LARCs, represent important research implications for the future.

APPENDIX A
SYNTHESIS OF EVIDENCE

Synthesis of Evidence

Reference	Study Type	IUDs are safe in adolescents and nulliparous	Implants are safe in adolescents and nulliparous	Anticipatory Guidance on Bleeding	LARC recommendations and use are low	Can screen and treat STDs on the same day as LARC insertions	Prophylactic antibiotics with insertion are no longer recommended	Minimal examination and tests needed	Pregnancy and STD screening necessary	Provide counseling on barrier methods	Adolescents may require closer follow up
Grimes, D.A., Lopez, L.M., Manion, C., & Schultz, K.F. (2007).	SR*	√	√	√					√		
Gavin, L., Moskosky, S., Carter, M., Curtis, K., Glass, E., Godfrey, E., CDC. (2014).	CPG	√	√		√				√		
Center for Disease Control. (2013).	CPG	√	√		√	√			√	√	√
American College of Obstetricia	CPG	√	√	√	√	√			√	√	

ns and Gynecolog ists. (2011).											
National Institute for Health and Care Excellence (2014).	CPG	√	√			√			√	√	
Oringanje, C., Meremikw u, M.M., Eko, H., Esu, E., Meremikw u, A., Ehiri, J.E., (2016).	SR*			√							
Lopez, L.M., Grey, T.W., Tolley, E.E., & Chen, M. (2016).	SR*										√

*Systematic Review

APPENDIX B
PROPOSED CLINICAL PRACTICE GUIDELINE

PROPOSED CLINICAL PRACTICE GUIDELINE

RECOMMENDATIONS FOR LONG ACTING REVERSIBLE CONTRACEPTIVE USE FOR ADOLESCENTS: a focus on contraceptive counseling

Author and Guideline Developer
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Qualifying Statements

This guideline is meant to supplement current LARC guidelines. It is not meant to replace or dispute current practice guideline recommendations

The guideline is not meant to replace clinical judgment

The guideline is not intended to have precedent over limitations in the practice setting or existing rules or regulations

Introduction

In the United States, 49% of pregnancies are unintended (Center for Disease Control [CDC], 2015a). For teenagers, rates of unintentional pregnancy rise to 80% (CDC, 2015a). In both women and adolescents, 43% of unintended pregnancies are a result of incorrect contraceptive use (Guttamacher, 2015a; Kavanaugh, Frohwirth, Jerman, Popkin, & Ethier, 2013). Unplanned teenage pregnancy has negative social, medical, and economic implications for adolescents and their children. The cost of teen pregnancy is estimated to be between 9.4 and 28 billion dollars and is largely financed by U.S. taxpayers (Department of Health and Human Services [HHS], 2016). Almost half of all teenage mothers live at, or below, the poverty line, and 63% of teen mothers receive public assistance from programs such as Medicaid (National Conference of State Legislatures, 2014). Teen parents are also more likely to use social services, such as foster care, and they are more likely to be incarcerated at some point in their lives (CDC, 2015a). The high use of these and other public services are a tremendous cost to society. Teen parents also represent a loss in tax revenue opportunity due to their lower education levels and decreased income rates (CDC, 2015a).

There are several forms of contraception available to adolescents, each with benefits and barriers. The male condom is the most common form of contraception by American teenagers (Guttmacher Institute, 2015b). Based on “typical use” teenagers have an 18% chance of becoming pregnant with this method (Guttmacher Institute, 2015b). Condoms, as a barrier method, are able to protect against both pregnancy and sexually transmitted diseases. Other popular forms of contraception include the pill, transdermal patch, and the injectable Depo-Provera (Guttmacher Institute, 2015b). See Table 3.0 in Appendix A for an outline of each contraceptive’s current usage, effectiveness and failure rates.

Long acting reversible contraceptives (LARCs) includes the subdermal etonogestrel implant device, or an intrauterine device (IUD). There are four IUD designs approved for use in the United States: the ParaGard T-380A, the Mirena, Skyla, and the Liletta. The ParaGard is the

only copper device approved for use in America (CAHC, 2014). The other three devices are hormonal uterine devices and are often referred to as a levonorgestrel intrauterine system.

IUDs are placed by a trained provider and can be removed by a provider at any time. Each device has a specific range of efficacy, but devices are approved for use between 3-5 years, with the exception of the ParaGard, which is effective for up to ten years. In general, IUDs are only contraindicated with the following conditions: active or suspected pregnancy, pelvic tuberculosis, newly diagnosed cervical or endometrial cancer (Paul & Stein, 2011). There may be difficulty in placing an IUD in women with fibroids or another anatomical disturbances (Paul & Stein, 2011). The safety of placing in IUD in a women with an active PID infection is debatable. The CDC guidelines recommend to screen for STIs at the time of insertion and treat infection once it is confirmed with the appropriate antibiotics (NGC, 2011). If there is a confirmed PID, then IUDs may not be the best option; however, current guidelines indicate that the provider may still opt to place if they perceive that the benefits outweigh the risks (NGC, 2011). There are almost no contraindications to the implant other than active breast cancer or an extensive cardiac history (CDC, 2016). If the patient is experiencing vaginal bleeding, the etiology must be evaluated prior to insertion (CDC, 2016). Eligibility criteria for each device are outlined in the World Health Organization Medical Eligibility for Contraceptives 2015 Recommendations.

For the purposes of this guideline, long acting reversible contraceptives (LARCs) include intrauterine devices (IUDs) and the subdermal etonogestrel implant. The American College of Obstetricians and Gynecologists (2012) asserts that IUDs and the contraceptive implant are safe and effective forms of birth control for adolescent mothers. Failure rates are very low as there is no daily, weekly, or monthly maintenance by the user. Several studies have shown a great deal of promise in decreasing teenage pregnancies with LARCs (Dodson, Gray, & Burke, 2012; Kohn, Hacker, Rousselle, & Gold; 2012). Pregnancy rates with either IUD or the etonogestrel implant use are 0.2-0.8% (CDC, 2015d). Furthermore, teenagers report a great deal of interest in LARCs, and report high satisfaction with this contraceptive method (Dodson, Gray, & Burke, 2012). More than two thirds of adolescents choose LARCs when counseled on all contraceptive options (Committee on Adolescent Health Care [CAHC], 2014).

Providers, however, are not likely to recommend LARCs to adolescents for various reasons (Dodson, Gray, & Burke, 2012). Many providers are reluctant to recommend an IUD for nulliparous women (Wilson, Strohntter, & Baecher-Lind, 2013; Luchhowski et al., 2014; Biggs, Harper, Malvin, & Brindis, 2014; Kohn, Hacker, Rouselle, & Gold, 2012). Reasons for this include: risk of sexually transmitted disease, anatomical considerations, and fertility concerns (Wilson, Strohntter, & Baecher-Lind, 2013; Biggs, Harper, Malvin, & Brindis, 2014; Rubin, Campus, & Markens; 2014; Kavanaugh, Frohwirth, Jerman, Poplin, & Ethier; 2014; Kohn, Hacker, Rouselle, & Gold, 2012). Over 43% of polled medical directors believed that IUDs were inappropriate for use in women 15-19 years old (Greenburg, Makino, & Coles; 2013). In a survey by Greenberg et al. (2013) 50% of surveyed pediatricians felt that abstinence should be the preferred method of contraception for adolescents and fewer than 20% discussed IUDs with their teenage patients. Only 32% of providers reported offering any long acting contraceptive to teenagers, and only 34% of providers would recommend an IUD to a woman who was not in a monogamous relationship (Greenburg, Makino, & Coles; 2013). Providers are more likely to

recommend IUD placement if they receive some form of women's health training (Wilson, Strohnitter, & Baecher-Lind, 2013; Greenburg, Makino, & Coles; 2013)

There are several arguments and misconceptions surrounding IUD placement in adolescents. One concern is the potential increased risk of pelvic inflammatory disease (PID); however, this is only seen in the first twenty days of insertion (Guttmacher, 2015b; CAHC, 2014). A retrospective cohort study revealed that adolescents had no significant difference from adults in complications such as those experienced during insertion, and PID rates were reported as low as 4.6% (Bayer, Jensen, Nichols, & Bednarek, 2012). Another cohort study found that, when compared with adults, teenagers with IUDs did not have increased STI rates, expulsion or removal rates (Ravi, Prine, Waltermaurer, Miller & Rubin, 2014; Ravi et al., 2014). Finally, a multicenter retrospective chart review of 2,523 women demonstrated no statistical significance between rates of expulsion, pregnancy, and PID in teenagers when compared to adults (Aoun et al., 2014; Ravi et al., 2014). There is an outdated misconception that IUDs may affect long-term fertility, but there is no evidence to support this claim (CAHC, 2014). There is also a misconception that the IUD may be more painful for adolescents due to their smaller anatomy. While pain is reported in over half of women who receive the IUD, this rate is not significantly more than in adults (CAHC, 2014). Teal et al. (2015) found that there were no anatomic challenges to IUD placement in adolescents.

The most common client criticism of both the IUD and implant is bleeding pattern changes, which can range from a heavier menstrual flow, occasionally seen with the Paragard, to amenorrhea, which is not uncommon with the hormone intrauterine devices and implant (CAHC, 2014). The IUD, particularly the Paragard, may cause increased dysmenorrhea.

The subdermal etonogestrel (ENG) implant is roughly the size of a matchstick and can be inserted outpatient by any trained provider. The implant is effective against pregnancy for up to three years. Increased menstruation and cramping occurs in only 16.9% of women, and is often treated effectively with a short course of NSAIDs or oral contraceptives (CAHC, 2014). The most common reason for early discontinuation of the implant is bleeding, weight gain, and palpable foreign body intolerance (Berlan, Mixraji, & Bonney, 2016). An unexpected health benefit of the implantable contraceptive is the higher hemoglobin levels found in women who experience decreased menstrual bleeding (CAHC, 2014).

Despite the 2011 American College of Obstetrics and Gynecology (ACOG) and 2015 World Health Organization (2015) assertion that LARCs are safe and effective in nulliparous women and adolescents, rates of insertion are very low and providers are still reluctant to recommend them as a first line contraceptive. A preliminary review of literature was undertaken to search for any guidelines that address adolescent-specific recommendations for LARCs. The search revealed a gap in the literature, with several guidelines that speak to LARCs, with a select number of adolescent issues, but none that provide comprehensive recommendations that address the developmental, physical and psychosocial needs of adolescent clients.

Objectives

- Increase the use of long-acting reversible contraceptives among adolescent females in order to decrease unintended adolescent pregnancies

- Increase provider recommendations of LARCs to adolescents in accordance with patient preferences
- Provide contraceptive counseling involving long-acting reversible contraceptives to eligible female adolescents in a developmentally appropriate manner that is congruent with patient preferences

Health Questions

- Are there specific questions or issues primary care providers should address with adolescents during contraceptive counseling?
- What are barriers and facilitators of LARCs with adolescents?
- What are barriers and facilitators of LARCs for providers working with adolescents?
- What communication techniques should providers use when discussing contraceptives with adolescents?

Recommendations

Major Recommendations

The evidence was initially graded using the USPSTF scale I-III. The grading schema is located at the end of this section. The recommendations are categorized as strong or weak recommendations and assigned an evidence quality score based on the Bridgepro program algorithm. The review of literature evidence table is located in Appendix B, Table 1.0. A one page summary of recommendations is located in Appendix C

Recommending Long-Acting Reversible Contraceptives to Adolescent Clients

It is recommended that providers first establish and maintain rapport with their adolescent clients. (Evidence Quality: High; Rec. Strength: Strong Recommendation)

Quality of Evidence: The recommendation was made based on the 2014 CDC recommendations for family planning services. In addition, the importance of a strong provider/patient relationship is supported in the meta-analysis by Zapata et al. (2015) and the 2015 American Academy of Pediatrics technical report. A descriptive study by Brown et al. (2013) found that many clients valued a friendly relationship with their provider and appreciated subjective opinions on contraception from their provider.

Potential Consequences: Providers will make medical decisions based upon a personal relationship with a patient versus a decision in the patients' best interest. A strong patient provider relation will lead to increased compliance with medical advice and lead to improved patient outcomes.

Rationale: Establishing a relationship with clients, particularly adolescent clients, builds trust with the patient. Adolescents depend on medical providers to give them reliable information and support their medical decisions. Contraception discussions and decisions can be a difficult and

uncomfortable conversation for adolescent clients, but a strong relationship with their provider can help facilitate a candid discussion regarding the patients' sexual health.

It is recommended that providers educate patients on the safety of LARCs in medically eligible, nulliparous adolescents during contraceptive counseling

(Evidence Quality: High; Rec. Strength: Strong Recommendation)

Quality of Evidence: This recommendation is based on the 2014 CDC guideline for quality family planning services as well as support from the WHO (2015) report and the ACOG (2013) recommendation.

Potential Consequences: Adolescents will choose a LARC, leading to decreased teen births, abortion, and rapid repeat pregnancies. Adolescents will not choose alternative, less effective, contraceptive methods.

Rationale: LARCs are safe for adolescents as well as nulliparous women (ACOG, 2013; WHO, 2015). LARCs are proven to decrease adolescent pregnancies, birth, and abortions (Diedrich et al., 2015). However, many clients, providers and parents are not educated on the safety of LARCs for adolescents, leading teens to choose less effective methods of contraception. Parental involvement in contraceptive counseling is not addressed in this guideline, but it is worth noting that LARC safety is an important message for parents as well as clients. A cohort study with 66 participants found that most mothers do not feel LARCs are appropriate for use in adolescents (O'Rourke-Suchoff et al., 2015).

It is recommended that providers clarify the efficacy of each contraceptive option in terms of perfect use versus typical use (Evidence quality: Moderate; Recommendation strength: Strong Recommendation) **AND it is recommended that Providers recommend LARCs as the first choice for adolescent contraception** (Evidence quality: Moderate; Recommendation strength: Strong Recommendation)

Quality of Evidence: LARCs are the first choice for contraception in adolescents according to the American College of Obstetrician and Gynecologists (2013), and the American Academy of Pediatrics (2015). Providers should discuss efficacy with their patients, as this was determined to be an important factor for adolescent contraceptive choice based on expert opinions in articles by Jaccard et al. (2013), Eliscu and Burnstein (2016), Hillard (2013), and Potter et al. (2015). Descriptive studies by Brown et al. (2013) and Schmidt et al. (2015) found that adolescents placed efficacy as the most important variable when choosing a contraceptive method. Surveys by Bharadvaj et al. (2012) (n=194), and Gomez et al. (2014) (n=382), cohort studies by Romero et al. (2015) (n=616,148), Peipert et al. (2012) (n=9,256), and O'Neil-Callahan et al. (2013) (n=6153) all found that LARCs were chosen more often if providers recommended them to clients and educated patients on efficacy. The large retrospective cohort research done as part of the CHOICE study found that when providers discussed the most effective contraceptives first, as well as provided contraceptives at no cost, there was an increase in LARC method uptake and a subsequent decrease in teen pregnancies, births, and abortions (Romero et al., 2015).

Potential Consequences: Adolescents will choose a LARC, which may lead to decreased teen births, abortion, and rapid repeat pregnancies. Adolescents choose less effective forms of contraception.

Rationale: Contraception efficacy is based on perfect use and typical use. Many forms of contraception, including condoms, oral contraceptives, the ring and the intradermal patch, are

significantly more effective if they are used correctly. Efficacy for many methods relies is user-dependent. For various reasons, adolescents are not always able to follow perfect use. LARCs eliminate user-error; their efficacy is unaffected by typical and perfect use. This leads to overall user satisfaction and longer continuation rates of contraceptives. See Table 3.0 in Appendix A for individual contraceptive efficacy with perfect and typical use.

It is recommended that providers discuss contraception at every visit (Evidence quality: High; Recommendation strength: Strong Recommendation) **AND it is recommended that providers include an updated or new health history during every clinic visit with an adolescent** (Evidence quality: High; Recommendation: Strong Recommendation)

Quality of Evidence: This recommendation is based on the CDC recommendations of youth friendly services as well as the recommendation of the American Academy of Pediatrics as seen in the technical report prepared by Ott et al. (2015). In addition, a retrospective cohort study by Kharbanda et al. (2014) (n=1600) found that in order to increase LARC update, providers should address contraceptives with adolescents every visit. Furthermore, a classic prospective-randomized trial by Berger et al. (1987) found that discussing contraception with adolescents does not increase the likelihood that the child will engage in sex. It also found that providing contraceptive counseling to sexually active teens significantly increases contraceptive use.

Potential Consequences: Providers will have a current sexual health history and make informed recommendations for contraception. Providers will deliver patient-centered care. Adolescents will have increased knowledge of their contraceptive options and will have the opportunity to discuss each method. Adolescent clinic visits will be longer as a result of additional counseling.

Rationale: A current health history is helpful for the provider to make informed recommendations for contraceptives. The sexual health history may also illuminate other health concerns or high risk behaviors that should be addressed by the provider. While additional counseling and screening is time consuming, it is part of essential preventative care, and can lead to an overall reduction in health service utilization by the client.

It is an option that clinics and/or providers offer confidential services and the right to consent to adolescent patients within the confines of state, federal, and local law (Evidence Quality: Moderate; Rec. Strength: Weak Recommendation)

Quality of Evidence: This recommendation was made based on the 2014 CDC recommendations for confidential adolescent services. The American Academy of Pediatrics Technical Report cites confidentiality as a cornerstone of youth-friendly services (Ott et al., 2015). Confidential medical care and counseling is very important to adolescents. A randomized controlled trial by Ford et al. (1997) (n=562) found that making an assurance of confidentiality and conditional confidentiality increased adolescents likelihood to disclose sensitive information and seek future health care.

Potential Consequences: Patients will engage in conversations on sensitive topics such as sexual activity, high risk behaviors, and contraception. Clients will be medical services more often. Clients will be less likely to disclose or seek services if conditional confidentiality is present. Patients' confidential information will be accidentally disclosed if financial and legal obligations are not followed. Parents or guardians will dispute the adolescents' right to confidential services or counseling.

Rationale: There are state and federal laws that protect adolescents' right to confidential services. However, confidential billing practices and individual clinical policies are not consistent. Every provider should understand privacy implications for each patient. The evidence suggests that if teens are given an assurance of confidentiality than they are more likely to seek medical services and discuss sensitive subjects with their provider. When adolescents are confident of their confidentiality they will be more likely to discuss and obtain contraception, leading to decreased teen births, pregnancies, and abortions.

Using Developmentally Appropriate Teaching

It is an option that providers and clinics incorporate visual aids during contraceptive counseling with adolescents

(Evidence Quality: Moderate; Rec. Strength: Weak Recommendation)

Quality of Evidence: A systematic review by Pazol et al. (2015) found fourteen different studies that examined the effects of visual education materials on an adolescent's knowledge of contraception and their decision making process. The studies examined various visual aids including written, audio, and video aids. Six of the statistically significant studies were randomized controlled trials with low risk of bias, which revealed that visual aids improve adolescent's knowledge of contraception and helped them in the decision making process. Descriptive studies by Brown et al. (2013) and Kavanaugh et al. (2013) both found that adolescents believed visual aids were helpful during contraceptive counseling. There is insufficient evidence to determine which type of visual aid is most effective for contraceptive counseling.

Potential Consequences: Visual aids will increase adolescents' knowledge of effective contraceptives and help them make an informed decision about LARCs. They will decrease premature discontinuation of contraception, and lead to lower rates of teenage pregnancy, births, and abortions. Negative consequences include increased provider or staff time to discuss education materials, Education tools will be an increased cost to clinics. Conversely, visual aids will answer the client's questions and shorten clinic visits.

Rationale: Providers may not have the time to answer all of the patient's questions, and may not be trained in developmentally appropriate counseling techniques. Visual aids are proven to increase adolescents' knowledge of the various contraceptive choices, and provide a way to offer education using developmentally appropriate language. This may help the client make an informed decision regarding LARCs. While visual aids may be an extra cost for clinics, they can help initiate a conversation on contraception. The cost of these education materials does not compare to the overall healthcare cost of unintended pregnancy.

It is recommended that Providers incorporate motivational interviewing (Evidence quality: High; Recommendation strength: Strong Recommendation) **AND it is an option that Providers use shared-decision making when counseling adolescents on LARCs.** (Evidence quality: Low; Recommendation strength: Weak Recommendation)

Quality of Evidence: A meta-analysis by Wilson et al. (2015) found two randomized controlled trials that demonstrated motivational interviewing with adolescents is an effective strategy for contraceptive counseling. Motivational interviewing was particularly effective for helping

adolescents choose more effective contraceptives such as LARCs. A descriptive study by Dehlendorf et al. (2013) found that shared decision making is the favored communication method, but it is also the least likely communication style to be used with adolescents as providers are more likely to use an authoritarian communication style with younger clients. A cross-sectional survey by Donnelly et al. (2014) found that providers and adolescents often have a discordance in priorities for contraception, causing frequent communication barriers.

Potential Consequences: Adolescents will work with providers to choose the most effective contraceptive method, leading to decreased teenage pregnancies, births, and abortions. If done incorrectly, the client may feel they are unable to make an autonomous decision. Provider and staff training on motivational interviewing and shared decision making will incur additional costs.

Rationale: Shared decision making allows the provider and client to discuss contraceptives while allowing the client to make an autonomous decision. Motivational interviewing can help the provider assess the adolescents' willingness to change or adopt a behavior. It can help the provider explore the client's perception of LARCs, their perceived barriers and facilitators to contraceptives and help the client problem solve. Motivation interviewing allows the client and provider to engage in shared-decision making, with the provider helping guide the adolescent to choose the most effective contraceptive that meets their personal criteria.

It is recommended that providers incorporate anticipatory guidance during initial contraceptive counseling which includes: correct use of method, required follow up, potential side effects, non-contraceptive benefits, potential pain with insertion and continued use, possible changes in bleeding patterns, as well as how and when to discontinue

(Evidence Quality: High; Rec. Strength: Strong Recommendation)

Quality of Evidence: The positive effect of anticipatory guidance during contraceptive counseling is identified in one randomized controlled trial Harper (2015) (n=1500). The cohort studies by Winter et al. (1991) (1,261) found extensive patient education was an important part contraceptive counseling. A retrospective cohort study by Rociotti et al. (2015) (n=276) found that the most likely reasons for early discontinuation of LARCs was bleeding, pain, and cramping and concluded that women should be counseled in side effects prior to insertion. The importance of adolescent patient education is further demonstrated in a large, multi-center retrospective chart review by Aoun et al. (2016) (n=2523), which found that young women are more likely to prematurely discontinue LARC if they did not receive comprehensive counseling prior to insertion. A descriptive study by Schmidt et al. (2015) (n=43) found that adolescents wished they were given more information on pain with insertion and continuation. Anticipatory guidance for adolescent contraceptives is also discussed in several expert opinion papers including Eliscu et al. (2016) and Jaccard (2013).

Potential Consequences: Patients will have increased knowledge of contraceptive options and will make an informed decision. They will be more likely to choose more effective options such as LARCs. Patients will have lower rates of contraceptive discontinuation.

Rationale: Anticipatory guidance is a fundamental part of any adolescent clinic visit, and providing guidance for contraceptives should be a routine component of contraceptive counseling visit. Making an informed decision on contraception is critical to avoiding patient

dissatisfaction and premature discontinuation of any contraceptive method. Once a LARC is discontinued the patient may choose to forego contraception based on their negative experience or opt for less effective contraceptive methods.

Provide Adolescent Patients with Youth-Friendly Services

It is recommended that Clinics and providers provide youth-friendly contraceptive and reproductive health services to clients as defined by the CDC's thirty-one evidence-based clinical practices when providing primary care to female adolescents of reproductive age (Evidence Quality: High; Rec. Strength: Strong Recommendation)

Quality of Evidence: A full review of literature was not done as these practices are based on the CDC's 2014 evidenced-based, youth-friendly reproductive clinic practice recommendations. A meta-synthesis and study by Romero et al. (2015) examined 51 separate clinics and found that health centers who incorporated the 31 youth friendly practices saw an increase in the use of more effective contraceptive methods as well as higher adolescent patient satisfaction. The Romero et al. synthesis guided the development of the CDC's 2014 recommendations. See Table 4.0 in Appendix A for a full list of youth-friendly services.

Potential Consequences: Adolescents will be able to access comprehensive reproductive health services, including more access to contraceptives delivered in a developmentally appropriate setting. Youth-friendly services will increase the uptake of more effective contraceptive methods and subsequently decrease teen pregnancy, birth, and abortion rates. There will be an increased cost to clinics by adding additional training, resources, and staffing in order to meet youth-friendly standards.

Rationale: Youth-friendly clinics attempt to overcome common barriers to contraception such as location, transportation, cost, multiple contraceptive initiation visits, and medically unnecessary and medically invasive exams. These clinics bring education and services into the community through outreach programs. However, it can be costly to deliver some components of these services such as extending clinic hours and providing low or no cost contraceptives. In spite of increased costs to clinics, the overall costs of care are sustainable with the introduction of effective contraceptives as well as cost saving measures which are included the CDC 2014 recommended practices. Medicaid data from 2004-10 demonstrates that LARCs demonstrate a decrease in health care costs long term despite the high upfront costs of providing LARCs (Laliberte et al., 2014).

It is recommended that the provider assess the psychosocial needs of the patient during contraceptive counseling

(Evidence Quality: Moderate; Rec. Strength: Strong Recommendation)

Quality of Evidence: A systematic review by Zapata et al. (2015) found several studies that demonstrate moderate to high patient compliance if psychosocial needs are addressed during contraceptive counseling. The expert opinions by Jaccard et al. (2013) supports providers discussing each client's individual social-behavioral factors. Levy et al. (2015) used a mixed methods analysis (n=342) to determine that social factors are an important influence on an adolescent's contraceptive choice. A descriptive study by Minis et al. (2014) (n=67) analyzed transcripts of contraceptive counseling and found LARC continuation was more likely if the

client received counseling that addressed lifestyle factors, sexual behavior patterns, and contextual influences of LARCs.

Potential Consequences: The provider will give patient-centered counseling that addresses the unique needs of each client. The patient will choose a contraceptive that best fits their lifestyle and their priorities for contraception. Patients will choose a more effective contraceptive methods, leading to decreased teen pregnancy, birth and abortion rates. The patient will not discontinue the contraceptive prematurely.

Rationale: When the provider explores the psychosocial needs of the client they gain valuable information on the patient's personal conflicts with LARCs. Social norms, stigma, sexual preferences, and a client's self-image can all affect an adolescent's contraceptive choice. Social needs and concerns are particularly important to the adolescent client (Jaccard et al., 2013). In one study by Levy et al (2015) teens mentioned social influences in 42% of contraceptive counseling visits. The young client may have undisclosed social norms that may prevent her from chooses a more effective method; this information is important for the provider to know and address in order to help the client make the best choice of contraception.

It is an option that providers or clinic staff discuss the cost of LARCs

(Evidence quality: High; Recommendation strength: Weak Recommendation) AND it is an option that Providers or clinic staff provide LARCs at low or reduced cost to adolescents when discussing contraceptive options (Evidence quality: High; Recommendation strength: Weak Recommendation)

Quality of Evidence: A survey by Kavanough et al. (2013) (n=584) found that cost was a barrier to adolescents choosing LARCs. The CHOICE cohort study (n=9,256) found that when offered LARCs at no cost, adolescents were more likely to choose more effective methods, which led to an overall decrease of teenage pregnancy, births, and abortions. Other cohort studies used the data gathered from the CHOICE project and validated the importance of offering LARCs at no cost (Peipert et al., 2012) (n=9,256) and Secura et al. (2014) (n=1,404). As a part of youth-friendly services, the CDC recommends providing contraceptives at reduced cost.

Potential Consequences: Higher uptake of LARCs among adolescent, which will lead to decreased teenager pregnancies, births, and abortions. Increased cost to clinics.

Rationale: The cost of LARCs is often cited as a barrier by young patients, and youth are more likely to be uninsured and have limited financial resources. LARCs are more expensive upfront than other methods including: oral contraceptives, intradermal methods, and condoms (Laliberte et al., 2014). If clinics can offer low or no cost LARCs, than adolescents will be more likely to adopt these methods and decrease unintended pregnancies. If a clinic is unable to provide low cost LARCs than they should still address the costs up front, and providing the teen with outside resources.

It is recommended that Providers screen for anxiety and depression at all contraceptive counseling visits

(Evidence Quality: Moderate; Rec. Strength: Strong Recommendation)

Quality of Evidence: Stidham et al. (2013) conducted a longitudinal cohort study (n=689) and found that young women with symptoms of depression or anxiety are more likely to have inconsistent contraceptive use. A cross-sectional cohort study by Francis et al. (2015) (n=220)

revealed that adolescents with depressive symptoms are more likely to choose LARCs regardless of race, ethnicity, or education.

Potential Consequences: Adolescents who show signs of depression will choose a LARC. These clients will have more consistent contraceptive use with highly effective contraceptives.

Rationale: Adolescents with symptoms of depression and anxiety are more likely to have inconsistent contraceptive use. This makes them excellent candidates for LARCs. Screening for depression may also have non-contraceptive related benefits.

It is recommended that Providers screen for intimate partner violence (IPV) at every contraceptive counseling visit

(Evidence Quality: High; Rec. Strength: Strong Recommendation)

Quality of Evidence: A full literature review was not done as the American College of Obstetrics and Gynecology (2013) recommends that providers screen every adolescent at every clinic visit for intimate partner violence.

Potential Consequences: With frequent screening the adolescent client will disclose intimate partner violence. Victims of IPV will choose a safe and effective contraceptive method.

Rationale: IPV may involve reproductive and sexual coercion. Reproductive coercion is most likely to manifest as contraceptive sabotage and pregnancy pressure and coercion. At least 25% of adolescent females who become pregnant report they experienced pregnancy coercion and felt they needed to hide evidence of contraception (ACOG, 2013). Providers must advocate for contraceptive methods that are easy to conceal and difficult to remove. The ACOG recommends the Copper IUD with trimmed strings to make them undetectable to the partner; the safety of this practice was not evaluated as a part of this recommendation.

Eliminate Potential Barriers to LARCs

It is recommended that providers obtain training opportunities on LARC counseling, insertion, and discontinuation practices if providing primary care to adolescents of reproductive age.

(Evidence Quality: High; Rec. Strength: Strong Recommendation)

Quality of Evidence: A survey of 430 physicians found that only 30% of providers provide LARC recommendations; however, providers who received some form of women's health training were significantly more likely to prescribe a LARC for adolescents (Greenberg et al., 2013). A randomized controlled trial by Harper et al., 2013 (n=816) gave LARC training to providers and saw an increase in LARC uptake among adolescent patients. A systematic review of Arrowsmith et al. (2012) found six studies that showed an increased use of the Copper IUD when providers were educated on counseling, education, and given device training. An article by Atkin et al. (2015) cites two studies by Harper et al. (2013) and Lewis et al. (2013) for a combined total of 1,097 participants, who found that a lack of provider training on LARCs prevented providers from recommending LARCs to adolescents. A descriptive study by Rubin et al. (2013) discovered that providers cited knowledge gaps as a major barrier to recommending LARCs. A cohort study by Rubin et al. (2015) discovered that providers are more likely to recommend LARCs if they feel competent with LARC insertion, counseling and managing side effects.

Potential Consequences: Providers will use evidenced based practice when counseling and recommending contraceptive methods for adolescents. Higher uptake of LARCS and subsequent decrease in teenage pregnancies, births, and abortions. Providers will see higher client volumes for contraceptive visits.

Rationale: There is substantial evidence to prove that many providers have inaccurate information on patient criteria for LARCs (Harper et al. (2013). This makes them less likely to recommend the more effective methods. Providers are more likely to recommend LARCs if they have received additional training on LARC side effects, and insertion techniques, and adolescents are 2.7 times more likely to consider a LARC if it is recommended by their provider (Fleming et al., 2010).

It is recommended that providers assess a patient's current understanding and feelings regarding LARCs during contraceptive counseling

(Evidence Quality: High; Rec. Strength: Strong Recommendation)

Quality of Evidence: A survey by Hladky et al. (n=1,665) found that 61% of women underestimated the effectiveness of LARCs and over half poor knowledge of LARCs. Another survey by Stanwood and Bradley (2011) (n=190) found that many young women had inaccurate information on LARCs. A survey by Russo et al. (2013) (n=200) found that adolescents have many misconceptions of LARCs, many of which led to the adolescents reluctance to choose LARCs. A descriptive study found that patients lack factual information on LARCs (Schmidt et al., 2015) (n=43). Finally, an article by Atkin et al. (2015) cited adolescents' poor understanding of LARCs as a primary barriers in acceptance.

Potential Consequences: Patients will make an informed decision on their contraception. Patients will choose a LARC for primary contraception, which will lead to a decrease in teenage pregnancy, births, and abortions.

Rationale: Adolescents often get their information on contraception from unreliable sources such as peers and social media (Brown et al. 2013). Adolescents have reported the following myths: IUDs cause abortions, IUDs cause pelvic inflammatory disease, IUDs cause infertility, LARCs cause ectopic pregnancy, LARCs cause menstrual irregularities, IUDs are painful with insertion and continued use, LARCs cause weight gain, LARCs worsen acne, LARCs cause hair loss, IUDs do not fit into an adolescents uterus, LARCs cause osteoporosis, IUDs will get stuck in the uterus, IUDs can only be placed during menstruation, and LARCs are not recommended for adolescents (Russo et al., 2013). While some of these misconceptions may be true, in some circumstances, adolescents should be given the facts of LARCs in order to make an informed decision. It is not in the best interest of the patient for providers not to assume what the adolescent may know about contraceptive devices; having a frank discussion about young clients belief's and concerns with LARCs will dispel inaccurate information.

Limited Evidence Recommendations

The following two recommendations are based upon strong studies but do not represent evidenced-based practice without further research. They are included to encourage further exploration by the guideline's audience.

Integrating technology into adolescent contraceptive counseling may increase LARC uptake.

Quality of Evidence: Two studies examined the influence of technology on contraceptive counseling. The first, but Gilliam et al. (2014) (n=60) used a quality improvement project to introduce a waiting room app that was designed to educate patients on LARCs. They found an increase in patients who expressed an interest in LARCs during their clinic visit. The Kofinas et al. (2014) study was a small (n=69 and 74) randomized controlled trial that found some evidence to suggest that using social media sites, such as Facebook, increases adolescent patient preferences for LARCs.

Potential Consequences: Adolescents will have increased information on LARCs. Adolescents will make an informed decision to choose a LARC.

Rationale: Many youth rely on social media and technology for a significant amount of information (Brown et al, 2013). Providers and clinics can use these information portals as a means to reach out and educate adolescents on safe and effective contraceptive methods.

Using trained contraceptive counselors may increase LARC uptake among adolescents.

Quality of Evidence: A large prospective cohort study looked at rates of LARC placement and continuation when counseled by a provider (n=1,107) and when counseled by a trained contraceptive counselor who did not have any further health care training (n=6,530). Madden et al. (2013) did not find a statistically significant difference in LARCs uptake between the two groups.

Potential Consequences: Patient will receive contraceptive counseling from trained counselors and not providers. Providers will have increased time for contraceptive treatment and management. Patients will have increased opportunities to receive contraceptive counseling.

Rationale: Providers cite time in clinic for counseling as a barrier to LARC placement (Rubin et al., 2013 & 2015). The presence of trained contraceptive counselors would allow patients to still receive comprehensive counseling while reducing provider's clinic time. Counselors may also have the added benefit of a peer dynamic, which can lead to faster rapport and trust with clients.

Grading Schema

Grades of Evidence: using a modified quality of evidence tabled used by a similar clinical practice guideline developed by the Center for Disease Control.

Table 1.0: Grading the Evidence

- I-a Evidence was obtained from at least one properly conducted, randomized, controlled trial that was performed with adolescents.
- I-b Evidence was obtained from at least one properly conducted, randomized, controlled trial that was not done exclusively with adolescents.
- II-1 Evidence was obtained from well-designed, controlled trials without randomization.
- II-2 Evidence was obtained from well-designed cohort or case-control analytic studies, preferably conducted by more than one center or research group.

- II-3 Evidence was obtained from multiple-time series with or without the intervention, or dramatic results in uncontrolled experiments.
- III Opinions were gathered from respected authorities on the basis of clinical experience, descriptive studies and case reports, or reports of expert committees.

Levels of Recommendations: The evidence quality and strength of each recommendation were developed using the Bridgewiz software in order to decrease subjective bias. The program was developed and based upon the most recent U.S. Preventative Services Task Force evidence grading system.

Scope

Disease/Condition(s)

Unintended pregnancy
Nulliparous adolescents
Sexually transmitted diseases

Guideline Category

Counseling
Management
Prevention
Screening
Pediatrics
Reproductive Health
Family Planning
Women's Health

Clinical Specialty

Family Practice
Pediatric Practice
Internal Medicine
Obstetrics and Gynecology

Target Population

Nulliparous adolescent females ages 14-19 years old

Target Users

The following Primary Health Care Providers should use this guideline to inform their clinical practice and inform policies within their individual ambulatory practices:

Advanced Practice Nurses
Physicians
Physician Assistants

Interventions and Practices Considered

Copper T380A intrauterine device
 Levonorgestrel intrauterine system
 Contraceptive implant
 Contraceptive Counseling

Methodology

Methods Used to Collect/Select the Evidence

Searches of Electronic Databases including PubMed, CINAHL
 Searches through grey literature using Google Scholar

Inclusion Criteria:

Adolescent subjects
 Nulliparous subjects
 Research or article examines the effects of contraceptive counseling strategies on LARC uptake
 Research took place within the United States, or United Kingdom

Exclusion Criteria:

Research subjects do not include adolescents
 Findings are not applicable to adolescents in primary care
 Non-English publication,
 Statistics reports
 Using LARCs as a postpartum contraceptive intervention

Description of Methods Used to Collect/Select the Evidence

CINAHL: Searches occurred between October 2015 and October 2016. There were two searches. The first used key words “adolescent contraceptive counseling.” This revealed thirteen results. Of these results, abstracts were screened for inclusion criteria. Three of the thirteen studies met criteria and were included in the evidence table. One meta-analysis within this search was further explored for related studies and revealed five other studies. The second search used the key words “LARC adolescent.” This search yielded eight results. Abstracts were screen for inclusion and exclusion criteria and found four relevant studies. From these studies one was a meta-analysis that was further search for related literature, which revealed four additional relevant studies.

PubMed: Searches occurred between October 2015 and October 2016. There were two searches. The first used key words “adolescent contraceptive counseling,” yielding 1,483 results. The following filters were applied: clinical trials, clinical study, guidelines, meta-analysis, randomized controlled trials, reviews, twin studies, free full text, and female subjects’ ages 0-18 years old. This revealed 285 results. Each abstract was reviewed for relevance. Each study’s

full text was reviewed for inclusion and exclusion criteria and twenty two studies were included in the evidence table.

The second PubMed search used the same filters as the first but used key words “LARC adolescents.” This brought up thirty three studies, which were screened for relevance and inclusion criteria. Five were included in the evidence table.

Google Scholar: A search of gray literature using google scholar was done from September 2016- October 2016. The first search used key words “adolescent” and “contraceptive counseling” giving >35,000 results. The < 5 years since publication filter limited the results to 17 studies. These were further eliminated if the study was inaccessible, irrelevant, or already found in the previous searches of PubMed and CINAHL. Two studies met all inclusion and exclusion criteria and were added to the evidence table.

A second search of Google Scholar was done using key words “LARCS adolescents” with 2,390 results. The results were sorted by relevance. The <5 years since publication filter was applied bringing the results to 1,350 results. The first 6 pages of results were reviewed until the results were no longer relevant to the search terms. There were no further studies found that did not either meet inclusion, exclusion criteria, or were not already discovered and added to the evidenced table from prior searches.

Number of Source Documents

43 source documents reviewed and included in the clinical practice guideline.

Methods Used to Assess the Quality and Strength of the Evidence

See the grading schema with the Recommendations section

Methods Used to Analyze the Evidence

Each recommendations was input into the Bridgepro application, which applied an algorithm based on the GRADE guidelines by the Cochrane library. Recommendation strength was assigned by the Bridgepro program in order to reduce bias. The program required the author to input the individual benefits and risks of each recommendation and determine if there is preponderance of benefit, preponderance of risks, harms, and costs, or if there is equilibrium. The program then requires the author to determine if further research is unlikely to change the estimate of effect or likely, very likely that further research will have an impact on the estimate of effect. Or, if the estimate of effect is very uncertain. The Bridgepro program used the following schema to assign evidence quality rating and recommendation strength.

Table 2.0 Evidence and Recommendation Grading

Evidence Quality	Net Benefit	Net Harm	Balance
High Quality: Further research is very unlikely to change my confidence in the	Strong For	Strong Against	Weak

estimate of the effect.				
Moderate Quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.	Strong For	Strong Against	Weak	
Low Quality: Further research is very likely to have an important impact on my confidence in the estimate of effect and is likely to change the estimate.	Weak For	Weak Against	Weak	
Very Low Quality: Any estimate of effect is very uncertain.	Weak For	Weak Against	Weak	

Adapted from: (USPSTF, 2013)

Description of the Methods Used to Analyze the Evidence

Stated above

Description of Methods used to formulate the Recommendation

The evidence was reviewed and recommendations made based on the “Rating the Strength of Recommendations”

Strengths and Limitations of Evidence

The primary limitation of the guideline is the absence of a development committee. The guidelines and literature review was undertaken by one individual rather than multiple clinical experts. Interpretation of the evidence was also done by the sole developer. This introduces significant bias into the guideline.

The individual strengths and weaknesses of each body of literature is provided in the evidence table in Appendix B.

The primary strength of the guideline is the volume of literature reviewed in detail. Forty-eight studies were included after filtering through >38,000 studies for relevance. The literature was reviewed over one year, up until the month prior to submission for external validation. This ensured adequate time to review each piece of literature thoroughly and include the most current research available.

Cost Analysis

Not stated

Method of Guideline Validation

Internal Review

External Review

Description of Method of Guideline Validation

The guideline underwent external review by individual clinical experts from various clinical specialties. Each reviewer used the AGREE II tool, a validated tool created to review clinical practice guidelines.*

The guideline proposal and final draft was reviewed and accepted by a committee of three faculty members from the University Of Arizona College Of Nursing.*

Guideline Updates

The author plans to submit the guideline for publishing approval and presentation and professional symposiums over the next twelve months. During this time, every three months, a literature review, following the previous search methods should reveal any recent applicable literature. The guideline will be updated as necessary with discovery of new evidence.

Evidence Supporting the Recommendations

Type of Evidence Supporting Recommendations

See Appendix B, table 1.0 for evidence details.

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

See each individual recommendation for specific benefits

Potential Harms

See each individual recommendation for specific benefits

Contraindications

Contraindications

It is up to the clinical judgement of the provider to determine if the patient qualifies for a LARC. The guideline suggests reviewing the 2015 World Health Organization Medical Eligibility for Contraceptives.

Implementation of the Guideline

Description of Implementation Strategy

If a provider would like to implement the guideline into their practice, a one page summary of recommendations is provided in Appendix C. The author recommends the clinic staff adopt these recommendations using Kotter's Change Management Model. Each recommendation can be adopted separately or as system wide set of practices using this model.

Sample Outline

Determine the organization's readiness for change and collect feedback from key stakeholders such as staff, providers and patients.

Identify the change champions to include a clinic staff member, nurse, provider, billing representative, and patient representative.

Develop an implementation plan with timelines and budgets.

Conduct staff trainings and feedback on the recommendation/s

Implementation and data collection: stakeholders will have an opportunity to make suggestions and give feedback during this step.

Evaluate intervention based on feedback and data synthesis such as increased LARC use, time spent on contraceptive counseling, and cost.

Intervention updates: make change to the intervention, if necessary, to make the project sustainable. Repeat steps 5-7 as necessary.

Reward stakeholders with successes stories.

Implementation Tools

Not stated

Guideline Developer

Katie S. Strawn

Source of Funding

None

Guideline Validation Committee

The following are members of the guideline appraisal committee:

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Financial Disclosers/Conflict of Interest

There are no finances to disclose.

No identified conflict of interest

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APPENDIX A

Table 3.0: *Contraception Efficacy Comparison*

Method	Failure rates with perfect use	Failure rates with typical use	Percent used at last intercourse
Implant	0.05	0.05	<5%
IUD (LNG)	0.2	0.2	<5%
IUD (Copper-T)	0.6	0.8	<5%
Injectable	0.2	6	16%
Pill	0.3	9	53%
Vaginal Ring	0.3	9	8%
Patch	0.3	9	16%
Diaphragm	6	12	No data
Sponge with spermicide	9	12	No data
Male Condom	2	18	59%
Female Condom	5	21	No data
Withdrawal	4	22	No data
Fertility Awareness	0.4-5	24	No data
Spermicides	18	28	No data
No method	85	85	7-14%

(Guttmacher 2015b; Welte, Wildsmith, & Manlove, 2011)

Appendix B

Table 4.0: *Youth Friendly Services*

- Offer Same day appointments
- Offer after-school appointments
- Offer appointments during the weekend
- Takes a health history at every visit
- Offers a variety of contraceptive methods
- Prescribes hormonal contraception without physical exam or STI testing
- Initiates Quick start method for hormonal contraceptives
- Initiates hormonal contraceptives after negative pregnancy-test
- Initiate hormonal contraception using the quick start method when an adolescent client is provided with emergency contraception where a pregnancy test is negative
- Offers quick start insertion of IUD
- Ensures emergency contraception is available to females
- Provides emergency contraception to females for future use
- Provides emergency contraception to males for future use
- Adheres to current cervical cancer screening guidelines (initiate pap at age 21)
- Provides chlamydia screening at least annually, or based on diagnostic criteria, consistent with USPSTF and CDC recommendations
- Offers chlamydia screening for females using a urine or vaginal swap specimen
- Offers gonorrhea screening for both females and males
- Offers HIV rapid testing for females and males as per CDC recommendations
- Offers expedited, patient-delivered partner therapy as an option for the treatment of uncomplicated chlamydial infection
- Provides low-cost or no-cost contraceptive and reproductive health care services
- Provides confidential contraceptive and reproductive health care to adolescents without need for parental or caregiver consent (per state policy)
- Participates in the federal 340B drug discount purchasing program
- Uses electronic medical records
- Has systems in place to facilitate billing third party payers for contraceptive and reproductive health care services provided

(Gavin et al., 2014)

Appendix C

Table 1.0: Review of Literature Evidence Table

Author	Design	Participants	Search Terms	Database	Relevant Findings and Major Themes	Quality of Evidence
Eliscu et al. (2016)	Expert opinion		adolescent contraceptive counseling	CIHAHL	Recommend LARCS as a top tier contraceptive Advise patients that bleeding patterns may change with LARC Providers should address cost Providers should address intra and post insertion pain Providers should assess cost barrier Providers should attend LARC placement training Providers should counsel on condom use.	III
Zapata et al. (2015)	Systematic Review	22 studies	adolescent contraceptive counseling	CINAHL	Contraceptive counseling as a positive impact on adolescents Develop rapport between patient/provider Personalize counseling to each patient, i.e. barriers, perceived benefits, discussing expectations	I-a
Jaccard et al. (2013)	Expert Opinion		Referenced in Zapata et al.	PubMed	Providers should have perceived expertise, trustworthiness, and accessibility	III

					<p>Address confidentiality</p> <p>Encourage parental involvement</p> <p>Using active learning techniques</p> <p>Give priority to more effective measures</p> <p>Consider key social-behavioral factors: social norms, emotional reactions, feelings of efficacy, perception of advantages/disadvantages</p> <p>Recommend dual contraceptive measures</p> <p>Address potential side effects</p> <p>Adopt a quick-start policy unless patient does not medically qualify</p>	
Berger et al. (1987)	Prospective non-randomized trial	N=383	Referenced in Zappa et al.		<p>Contraceptive counseling does not increase rates of adolescent pregnancy</p> <p>Contraceptive counseling increases rates of contraceptive use among sexually active adolescents</p>	II-3
Winter et al. (1991)	Cohort study across multiple centers	N=1,261 (experimental)	Referenced in Zappa et al.	PubMed	<p>In-depth contraceptive counseling, developmentally appropriate education, reassurance and social support are more likely to use contraception,</p>	II-1

Pazol et al. (2015)	Systematic Review	17 studies	Referenced in Zappa et al.	PubMed	increase knowledge, and had decreased rates of discontinuation. Visual aids increase adolescent knowledge, make them more comfortable with making decisions, decrease pregnancy rates, and decrease early discontinuation rates.	I-a
Rubin et al. (2015)	Survey	N=151	adolescent contraceptive counseling	CINAHL	Providers more likely to counsel on LARC if they feel competent counseling and managing side effects Providers more likely to counsel if they can insert themselves or have an inserter in the office	II-3
Brown et al. (2013)	Descriptive	N=20	adolescent contraceptive counseling	CINAHL	Providers should discuss LARC as a top tier contraceptive Use of visual aids may increase use of more effective contraceptives Providers should discuss side effects during initial counseling Providers should emphasize the non-permanent nature of LARCs Tailor the counseling to the patients social-behavioral factors	III

					Rapport between patient and provider is important Identify patient's priorities Give reliable resources knowing that teens will look to social media and unreliable sources without guidance	
O'Rourke- Suchhoff et al. (2015)	Cohort study	N=66	LARC adolescent	CINHA L	Mothers do not find LARC methods to be acceptable for teenage daughters	II-3
Atkin et al. (2015)	Expert opinion		LARC adolescent	CINHA L	See screen shot	III
Harper et al. (2013)	Survey	N=816	Reference d in Atkin et al.	CINHA L	Many providers have inaccurate information on LARCs and should receive additional training	III
Lewis	Survey	N=231	Reference d in Atkin et al.	PubMed	Providers who received LARC training were 25% more likely to place and LARCs in their patients	II-3
Fleming	Survey	N=252	Reference d in Atkin et al.	PubMed	Adolescents are 2.7 times more likely to consider a LARC if it is recommended by a provider. 82% of participants felt that their condom use would not change with an LARC in place.	II-3
Russo et al. (2013)	Survey	N=200 adolescents	Reference d in Atkin et al.	Pubmed	The following are adolescent myths about LARCs: IUDs	II-2

and N=816
providers

cause abortions,
IUDs cause PID, IUD
cause infertility,
LARCs cause ectopic
pregnancy, LARCs
cause menstrual
irregularities, IUDs
are painful with
insertion and
continued use,
LARCs cause weight
gain, LARCs worsen
acne, LARCs cause
hair loss, LARCs
cause osteoporosis,
IUDs do not fit in
adolescents, IUD will
get stuck in uterus,
IUD can only be
placed during my
period, the packaging
says I can't use it,
LARCs cause cancer
The following are
provider myths and
misconceptions of
LARCs: parental
consent is required,
teens will not be able
to check the strings
monthly, teens prefer
condoms and oral
contraceptives,
The three most
important factors
when choosing
contraceptives are:
high efficacy,
protection against
STIs, and non-
interference with sex.
Positive factors for
LARCs: reliability
and long duration, a

Bharadvaj et al.
(2012)

Survey

N=194

LARC adolescent
s

CINHAL

II-3

Schmidt et al. (2015)	Descriptive Study with focus groups	N=43	Adolescent contraceptive counseling	PubMed	peer's positive experience Barriers: Fear of pain and needles. Teens value effectiveness, duration, convenience, and potential bleeding changes. Offer anticipatory guidance for LARCs	III
Wilson et al. (2015)	Meta-analysis and systematic review	8 articles	Adolescent contraceptive counseling	PubMed	Motivational interviewing is an effective technique for contraceptive counseling with adolescents.	I-a
Harper 2015	Randomized Controlled trial	N=1,500	Adolescent contraceptive counseling	PubMed	Pregnancy rates are reduced when adolescents are counseled on LARCs	I-a
Arrowsmith et al. (2015)	Systematic Review	Nine studies representing n=7,960	Adolescent contraceptive counseling	PubMed	LARC uptake is higher when providers are given additional training.	I-b
Romero et al. (2015)	Cohort	N=616,148	Adolescent contraceptive counseling	PubMed	The following increase uptake of LARCs: education providers that LARCS are appropriate for adolescents, train providers on insertion, train providers on client-centered counseling that discusses the most effective contraceptive first,	II-1

Hladky et al. (2011)	Survey	N=1,665	Adolescent contraceptive counseling	PubMed	providing LARCs at reduced or no cost. The majority of women underestimate the effectiveness of LARCs Half of women has little or inaccurate information on LARCs.	II-3
Stanwood et al. (2006)	Survey	N=190	Found in Hladky et al.	PubMed	The majority of young women had incorrect or incomplete information on LARCs	II-3
Levy et al. (2015)	Mixed methods analysis	N=342	Adolescent contraceptive counseling	PubMed	Adolescents will mention social influences in 42% of contraceptive counseling visits. Providers should attempt to illicit social context of contraception in order to provide client-based counseling.	II-2
Kharbanda et al. (2014)	Retrospective cohort	N=1,600	Adolescent contraceptive counseling	PubMed	Primary care providers do not routinely counsel on LARC. Should be done at every primary care visit for adolescents.	II-2
Potter et al. (2015)	Expert Opinion		Adolescent contraceptive counseling	PubMed	Contraceptive counseling should define method efficacy, discuss user preferences, barriers to use, and discontinuation	III
Ott et al. (2015)	Consensus		Adolescent contraceptive	PubMed	Best practices for contraceptive anticipatory	III

			ive counselin g		guidance: MI, confidentiality, consent, sexual health history with 5 P's, rapport, screening for STI and pregnancy, counseling, and providing access to contraceptives.	
Ford et al. (1997)	RCT	N=562	Found in Ott et al.	PubMed	Assurances of confidentiality will increase adolescents' willingness to disclose personal information Are more likely to follow up with medical services	I-b
Dehlendorf et al. (2013)	Descriptive with semi-structured interviews	N=42	Adolescent contraceptive counseling	PubMed	Shared decision making is the most desirable form of communication among women, but it is least likely to be used with adolescents.	III
Gomez et al. (2014)	Survey	N=382	Adolescent contraceptive counseling	PubMed	“Characteristics of a contraceptive method found positively associated with IUD interest were the method's not interfering with sexual pleasure (relative risk ratio, 3.4), being 99% effective without user action (2.5) and being effective for up to five years without any user action (3.8)”	II-3
Aoun et al. (2014)	Multi center retrospecti	N=2,523	Adolescent contracept	PubMed	Adolescents are more likely to discontinue LARCs early.	II-3

	ve chart review		ive counselin g		They would benefit from additional counseling.	
Gilliam et al. (2014)	QI project	60	Adolescent contraceptive counseling	PubMed	A waiting room app designed to educate on LARCs increased the likelihood of women expressing an interest in LARCs	II-3
Donnelly et al. (2014).	Cross-sectional survey	N=417 women and N=188 providers	Adolescent contraceptive counseling	PubMed	Providers and women have a discordance on what they feel is most important during contraceptive counseling Shared decision making is critical	II-2
Kofinas et al. (2014)	RCT	N=69 (experimental) and =74 (control)	Adolescent and contraceptive counseling	PubMed	Using Facebook/social media to educate on LARCs increases patient preferences for LARCs	I-a
Minnis et al. (2014)	Descriptive	N=67	Adolescent and contraceptive counseling	PubMed	Interactive counseling that discussed psychosocial components were 80% adolescents will continue LARC at six months when counseling includes influence participants' method use, including their contraceptive use, lifestyle characteristics knowledge of friends and family method, and the role of peers in decision	III

Stidham et al. (2013)	Longitudinal cohort study	N=689	Adolescent and contraceptive counseling	PubMed	Women/girls with depression and/or anxiety symptoms are more likely to have inconsistent contraceptive use. (up to 69%) Consider emotional status during contraceptive counseling	II-2
Hillard (2013)	Expert Opinion		Adolescents and contraceptive counseling	PubMed	Practical tips for adolescent contraceptive counseling	III
Rubin et al. (2013)	Descriptive	N=28	Adolescent and contraceptive counseling	PubMed	Barriers to placement for providers are knowledge gaps (capability) and limited access (opportunity)	III
ACOG	Consensus		Adolescent and contraceptive counseling	PubMed	Providers should screen every teen at every visit for IPV and reproductive and sexual coercion. Should offer LARC to these women as they are less detectable to partners	III
Kavanough et al. (2013)	Descriptive with telephone interviews	6 focus groups with staff and 48 interviews with adolescents	Adolescent and contraceptive counseling	PubMed	Challenges to providing LARCs included extra clinic time, outdated policies regarding multiple visits, perceived higher removal rates. Consider securing outside funding Visual aids are helpful for	III

Peipert et al. (2012)	Prospective cohort study	N=9,256	Adolescent and contraceptive counseling	PubMed	youth, staff wide education give clear, supportive, upfront counseling Promote the most effective contraceptive method Offer LARC at no cost to decrease teen birth rates.	II-2
Madden et al. (2013)	Prospective cohort study	N=6530 (experiment) and N=1,107 (control)	Adolescent and contraceptive counseling	PubMed	There is no difference in LARC uptake between provider counseling and trained contraceptive counselors with no formal health care training.	II-2
Rociotti et al. (2015)	Retrospective cohort study	N=276	Adolescent LARC	PubMed	Most patients identified LARCs as their method of choice even though it was not used as first line Provider and patient education is essential	II-3
Secura et al. (2014)	Prospective cohort study	N=1,404	Adolescent LARC	PubMed	72% of women who were educated on LARC and offered at no cost choice either the IUD or implant Overall pregnancy, birth and abortion rates were lower.	II-2
Laliberte et al. (2014)	Data review	Medicaid payments between 2004-10	Adolescent LARC	PubMed	This study of a large sample of Medicaid beneficiaries demonstrated that, over a follow-up period of 12 months, Medicaid payments for pregnancy were considerably higher	II-2

					<p>than payments for either SARC or LARC users. Healthcare payments for contraceptives represented a small proportion of payments for unintended pregnancy when considering the overall Medicaid population perspective in 2008. Cost per patient per month were higher for contraceptive payments were higher for LARCs, but all-cause payments were substantially less for LARCs.</p>	
O’Neil-Callahan et al. (2013)	Prospective observational cohort study	N=6153	Adolescent LARC	PubMed	Continuation rates for LARCs at 24 months was higher than OCPs, patch, ring, and DPMA. LARCs are first tier contraceptives.	II-2
Greenberg et al. (2013)	Survey	N=430	Adolescent LARC	PubMed	Only 30% of providers provide LARC services. Providers with women’s health training were more likely to prescribe.	II-2
Francis et al. (2015)	Cross-sectional study (cohort)	N=220	Adolescent contraceptive counseling	Google Scholar	Adolescents with depressive symptoms are more likely to choose LARC regardless of ethnicity/race, education, and number of partners.	II-3

Kavanou gh et al. (2013)	Survey	N=584	Adolescen t contracept ive counselin g	Google Scholar	Provide youth friendly services including: Clinic outreach and community education Flexible hours Barriers were: cost, inconvenient clinic hours, staff concerns regarding LARCs and adolescents, limited training on insertion	II-3
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APPENDIX D

RECOMMENDATIONS FOR LONG ACTING REVERSIBLE CONTRACEPTIVE USE FOR ADOLESCENTS:

A Resource for Primary Care Providers

Qualifying Statement

This guideline is meant to supplement current LARC guidelines. It is not meant to replace or dispute current practice guideline recommendations. The guideline is not meant to replace clinical judgment. The guideline is not intended to have precedent over limitations in the practice setting or existing rules or regulations

OVERVIEW

Despite the American College of Gynecology and Obstetrics (2011) and the World Health Organization (2015) assertion that LARCs are safe and effective in nulliparous women and adolescents, rates of insertion are very low and providers are still reluctant to recommend them as a first line contraceptive. The purpose of this clinical practice guideline is to introduce best practices for LARC contraceptive counseling in adolescents.

THE RECOMMENDATIONS

It is recommended that providers first establish and maintain rapport with their adolescent clients.

It is recommended that providers educate patients on the safety of LARCs in medically eligible, nulliparous adolescents during contraceptive counseling

It is recommended that providers clarify the efficacy of each contraceptive option in terms of perfect use versus typical use AND it is recommended that Providers recommend LARCs as the first choice for adolescent contraception

It is recommended that providers discuss contraception at every AND it is recommended that providers include an updated or new health history during every clinic visit with an adolescent

It is an option that clinics and/or providers offer confidential services and the right to consent to adolescent patients within the confines of state, federal, and local law

It is an option that providers and clinics incorporate visual aids during contraceptive counseling with adolescents

It is recommended that Providers incorporate motivational interviewing AND it is an option that Providers use shared-decision making when counseling adolescents on LARCs

It is recommended that providers incorporate anticipatory guidance during initial contraceptive counseling which includes: correct use of method, required follow up, potential side effects, non-contraceptive benefits, potential pain with insertion and continued use, possible changes in bleeding patterns, as well as how and when to discontinue

It is recommended that Clinics and providers provide youth-friendly contraceptive and reproductive health services to clients as defined by the CDC's thirty-one evidence-based clinical practices when providing primary care to female adolescents of reproductive age

It is recommended that the provider assess the psychosocial needs of the patient during contraceptive counseling

It is an option that providers or clinic staff discuss the cost of LARCs AND it is an option that Providers or clinic staff provide LARCs at low or reduced cost to adolescents when discussing contraceptive options

It is recommended that Providers screen for anxiety and depression at all contraceptive counseling visits

It is recommended that Providers screen for intimate partner violence (IPV) at every contraceptive counseling visit

It is recommended that providers obtain training opportunities on LARC counseling, insertion, and discontinuation practices if providing primary care to adolescents of reproductive age

It is recommended that providers assess a patient's current understanding and feelings regarding LARCs during contraceptive counseling

APPENDIX C

EXTERNAL APPRAISAL CONFLICT OF INTEREST DISCLOSURE STATEMENTS

EXTERNAL APPRAISAL CONFLICT OF INTEREST DISCLOSURE STATEMENTS
Conflict of Interest Disclosure

The potential for conflict of interest arises when an individual influences an activity based on a personal or professional commercial or financial interest.

An organization is not a commercial interest organization if it is*:

- A government entity;
- A non-profit (503(c)) organization;
- A provider of clinical services directly to patients, including but not limited to hospitals, health care agencies and independent health care practitioners;
- An entity the sole purpose of which is to improve or support the delivery of health care to patients, including but not limited to providers or developers of electronic health information systems, database systems, and quality improvement systems;
- A non-healthcare related entity whose primary mission is not producing, marketing or selling or distributing health care goods or services consumed by or used on patients.
- Liability insurance providers
- Health insurance providers
- Group medical practices
- Acute care hospitals (for profit and not for profit)
- Rehabilitation centers (for profit and not for profit)
- Nursing homes (for profit and not for profit)
- Blood banks
- Diagnostic laboratories

Since you participated in an educational activity, it is required that you disclose any commercial relationship of yourself or your spouse/significant other/partner. A relationship includes: salary, royalties, intellectual property rights, consulting fees, honoraria, stock or stock options, grants, contracts or other financial benefits.

Is there a potential conflict of interest?

Yes No

If so, what is the name and type of relationship*:

What steps were taken to remove the conflict of interest?

I have read each item carefully and completed this form to the best of my knowledge

By typing your name in the Signature box, you are providing an electronic signature and acknowledging your approval of all information provided above.

Required Signature with First and Last Name

Lynn Murphy

10/16/2016

Conflict of Interest Disclosure

The potential for conflict of interest arises when an individual influences an activity based on a personal or professional commercial or financial interest.

An organization is not a commercial interest organization if it is*:

- A government entity;
- A non-profit (503(c)) organization;
- A provider of clinical services directly to patients, including but not limited to hospitals, health care agencies and independent health care practitioners;
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- Liability insurance providers
- Health insurance providers
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- Rehabilitation centers (for profit and not for profit)
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Is there a potential conflict of interest?

Yes
 No

If so, what is the name and type of relationship*:

What steps were taken to remove the conflict of interest?

I have read each item carefully and completed this form to the best of my knowledge

By typing your name in the Signature box, you are providing an electronic signature and acknowledging your approval of all information provided above.

Required Signature with First and Last Name

Click here to enter a date

 MONTIQUE MARTINEZ-QUIROS

Conflict of Interest Disclosure

The potential for conflict of interest arises when an individual influences an activity based on a personal or professional commercial or financial interest.

An organization is not a commercial interest organization if it is*:

- A government entity;
- A non-profit (503(c)) organization;
- A provider of clinical services directly to patients, including but not limited to hospitals, health care agencies and independent health care practitioners;
- An entity the sole purpose of which is to improve or support the delivery of health care to patients, including but not limited to providers or developers of electronic health information systems, database systems, and quality improvement systems;
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Is there a potential conflict of interest?

Yes No

If so, what is the name and type of relationship*:

What steps were taken to remove the conflict of interest?

I have read each item carefully and completed this form to the best of my knowledge
By typing your name in the Signature box, you are providing an electronic signature and acknowledging your approval of all information provided above.

Required Signature with First and Last Name

10/20/2016

APPENDIX D

EXTERNAL APPRASER RESUME/CURRICULUM VITAE

EXTERNAL APPRASER RESUME/CURRICULUM VITAE

LYNN MURPHY

- EXPERIENCE** UNITED COMMUNITY HEALTH CENTER; PEDIATRIC NURSE PRACTITIONER
 March 2011-present
- Provides primary care to children age 1 day to 21 years in Federally Qualified Health Center
 - Pediatric preceptor for Family Nurse Practitioner students attending local universities
- OFFICE OF RONALD GOODSITE, MG; PEDIATRIC NURSE PRACTITIONER
 March 2009-March 2014
- Provided primary care to children age 1 day to 21 years in a private pediatric office
- 355th MEDICAL GROUP, DAVIS MONTHAN AFB AZ; MATERNAL CHILD FLIGHT COMMANDER & PEDIATRIC NURSE PRACTITIONER
 Nov 2003-March 2009
- Directed operations for Pediatric and Women's Health Clinics with 27 staff members and 1.9K outpatient visits per month
 - Delivered comprehensive primary care to children from birth to age 17 in a pediatric outpatient clinic with over 4.5K empaneled patients
- 55TH MEDICAL GROUP, OFFUTT AFB, NE; PEDIATRIC NURSE PRACTITIONER
 July 2001-Oct 2003
- Primary Care Manager for children from birth through age 17 for 1.2K empaneled patients
 - Preceptor for Family Medicine Residents and Physical Assistant Students
- 4th MEDICAL GROUP, SEYMOUR JOHNSON AFB, NC; PEDIATRIC NURSE PRACTITIONER
 June 1998-June 2001
- Primary Care Manager for children from birth through age 17 for 1.5K empaneled patients
 - Member of Family Maltreatment Case Management Team

USAF, VARIOUS LOCATIONS; CLINICAL NURSE

January 1988-Sep 1996

- Assistant Nurse Manager of Newborn Nursery
- Neonatal Resuscitation Program and BLS instructor
- Clinical nurse in Pediatrics, Med/Surg, Labor & Delivery, OB/GYN, level II nursery

EDUCATION UNIVERSITY OF MASSACHUSETTES, MASTER OF SCIENCE IN NURSING, 1998
Sep 1996-May 1998

UNIVERSITY OF MASSACHUSETTS, BACHELOR OF SCIENCE, CUM LAUDE, 1987
Sep 1983-May 1987

REFERENCES AVAILABLE UPON REQUEST

*Curriculum Vitae***M. Monique N. Martinez-Quiros, M.S.**

5337 S. Newcastle Court

Tucson, Arizona 85746

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Mnm2@email.arizona.edu

MNMart15@asu.edu

EDUCATION**Doctor of Behavioral Health**, In-Progress, Anticipated 2017

Arizona State University, Online (3.7 GPA)

M.S., Mental Health Counseling, November 2013

Walden University, Online (3.0 GPA)

B.A. Multidisciplinary Studies, May 2009

University of Arizona, Tucson (3.0 GPA)

GRANT EXPERIENCE

Clinical Research Coordinator, The University of Arizona, Tucson, Arizona, 10/2016- Present
 Providing project coordination and clinical research daily operations for this multi-site study to ensure successful implementation and adhere to the clinical research protocol and national and local milestones regarding planning, administration, timeline management, enrollment, participant engagement, data collection, and reporting.

Community Health Educator, The University of Arizona, Tucson, Arizona, 08/2014 - 12/2015
 Community Health Educator for an interprofessional collaborative care team in conjunction with a NEPQR grant. Responsible for serving as an intermediary between health and social services and the community to facilitate appropriate access to services and improve the quality and cultural competence of service delivery with our cohort of patients with complex medical illnesses.

Research focuses on reducing emergency room visits by providing primary care based interventions with the University of Arizona Health Network's Department of Family and Community Medicine and the College of Nursing creating an innovative approach to team-based primary care. The current inter-professional team is composed of representatives from the Colleges of Nursing, Medicine, Pharmacy and Public Health as well as a Community Health Educator/Worker. M. Monique N. Martinez-Quiros 2

My ultimate goal in this position is to create a positive connection among patients, their caregivers and family members with their medical care providers. One measure that is used to determine success is the Patient Activation Measure (PAM) that assists in the evaluation of predicting future emergency room visits, hospital admissions and re-admissions, medication adherence and overall medical and mental health compliance. More specifically, the PAM is able to map out the patient's level of activation in their own care such as motivators, attitudes, behaviors and outcomes. The PAM is conducted at the beginning of the patient's inclusion in the specialized team and again after they are transitioned back to care as usual. Similar to the PAM, for caregivers I utilize the Brief Measures of Secondary Role and Intrapsychic Strains at the beginning and again at the time their loved is transitioned back to care as usual. This gives me the opportunity to obtain an accurate view of what actual tasks the caregiver is responsible for

and how the stress associated with these tasks have made an impact in the caregiver's personal life. This gives me an accurate understanding of what is going on with the caregiver, their mindset as well as their coping style and level of resiliency. In obtaining the information gleaned from both assessments I am able to create a treatment plan that helps both the patient and caregiver/family to work together in unison rather than against each other. Although, these assessments are completed a second time, within 30 days of the patient's transition back to care as usual, the end assessments are often drastically different from the ones at the beginning. This reinforces to both patient and caregiver that their effort did not go unnoticed and was worthwhile.

Program Coordinator, Catholic Social Services, 2011-2013

Program Coordinator for a collaborative team in conjunction with an Arizona Department of Economic Security -Child Protective Services grant. Response for the provision of all authorized services within an assigned program area and complying with agency policies, applicable State law and regulations, purchase of service contracts, other funding sources, and accepted professional standards and practices.

The Parent Aide Program is a DES contracted program for parents of children (0-18) who are in CPS custody due to abuse or neglect.

PROFESSIONAL EXPERIENCE

Sonora Behavioral Health Hospital, Psychiatric Lead Social Worker: Duties include assess, evaluate, counsel and facilitate course of care for patients; serve as the contact point for treatment and transition planning; conduct individual and group therapy as well as family meetings for coordination of care.

Banner UA Health Plan, Cenpatico Integrated Care Transitions Coach: Duties include collaboratively participating with the medical management teams (case management and behavioral health case management) as well as Cenpatico case manager team for the seriously mentally ill (SMI) members. Providing telephonic discharge planning and arrangement of post-discharge services; documenting all interventions in the electronic medical record for both Banner UA Health Plan (BUAHP) and Cenpatico M. Monique N. Martinez-Quiros 3

Integrated Care (C-IC) in a timely and accurate manner. Assisting and supporting families by acting as a liaison to healthcare facilities, community groups and with intake and care coordination agencies (ICCA's). I am required to maintain knowledge of Medicare, Medicaid and other program benefits to assist members with transition of care planning. I am responsible for facilitating the safe and timely transition of members from acute or inpatient care to alternative levels of care such as skilled nursing facility, and/or home care program; determining client appropriateness for transition of care and coordinates health care and social services to support the client in designated setting. Collaborate with all members of the healthcare team to develop, manage and communicate the transition of care plan.

Bridges Counseling, LLC., License Eligible Behavioral Health Professional: Duties include providing individual, group and family therapy (as needed), participating in interdisciplinary treatment planning by developing a comprehensive psychosocial assessment and crisis intervention consultation while providing continuous clinical and case management to a primarily diverse adult forensic consumer population including specialized treatment for co-occurring mental health issues.

Devon Gables Rehabilitation Center, Secured Unit Social Worker: Duties included providing psychosocial care for the long term facility residents on the secured units and their families. Assess the residents' mental health and screen for depression quarterly while providing therapeutic counseling on a variety of issues from loss of independence, adjustment to the long term care unit as well as grief and loss counseling for both resident and families.

Crisis Response Network of Southern Arizona, Behavioral Health Technician:

Duties included maintaining and managing the safety of individual in the assessment area, 23 hour observation and sub-acute units as well as completing safety and suicide risk assessments.

TEACHING EXPERIENCE

Community Health Educator, The University of Arizona, Tucson, Arizona, 08/2014 - 12/2015
Provide education to patients in grant cohort. Co-facilitate bi-weekly group healthcare meetings. Facilitate health promotion and prevention in community.

Public Health Preceptor, The University of Arizona, Tucson, Arizona, 08/2014 – 05/2015
Precepted undergraduate College of Public Health student on research association with conducting a community health assessment.

Group Facilitator, Bridges Counseling, Tucson, Arizona, 11/2013 – 09/2015
Organize and facilitate Adult/Civic Responsibility classes to court-ordered offenders on a monthly basis.

ALTCs Consultant, Devon Gables, Tucson, Arizona, 11/2013 – 11/2014

Consulted with residents and families about the Arizona Long Term Care System application and approval process.

CPS Consultant, Catholic Social Services, Tucson, Arizona, 06/2010 – 11/2013 M. Monique N. Martinez-Quiros 4

Consulted with families who were in a 90-day removal via the Arizona Department of Economic Security- Child Protective Services on how to successfully complete their action plan for reunification.

Sensitivity Trainer, Devon Gables Rehabilitation Center, Tucson, Arizona, 12/2013-08/2014
Co-facilitated sensitivity instruction for all rehabilitation center staff that interfaced with resident population.

Parenting Consultant, Catholic Social Services, Tucson, Arizona, 05/2012-11/2013
Facilitated monthly parenting skills workshops for each of the following models: Nurtured Heart Approach, New Directions Social Learning Curriculum and Love & Logic program.

PROFESSIONAL ACTIVITIES

- Graduate Representative for the Family Resource Advisory Board, ASASU (May 2015-Present).
- Chair of Education Committee, Banner UA Health Plan- Medical Management (April 2016-June 2016).
- Co-Chair of Opioid Program Committee, Banner UA Health Plans- Medical Management (April 2016- June 2016).
- Member of the American Counseling Association, (August 2011-Present).
- Member of the American Mental Health Association, (August 2011-Present).
- Member of the National Council for Behavioral Health, (May 2015-Present).
- Member of the Arizona Community Health Worker Association, (August 2014-Present).

- Panel Speaker at the Arizona Department of Health Services Bureau of Tobacco & Chronic Disease Team-Based Care Symposium, (2015).
- Member of the, (August 2009-December 2012).
- President of (January 2007-December 2009).
- Vice President of BabyCats ASUA at University of Arizona, (August 2004-December 2006).

CERTIFICATIONS M. Monique N. Martinez-Quiros 5

- CITI Certifications in: Human Research (Exp. 12/2019); Biomedical Research (Exp. 12/2019); Responsible Conduct of Research (Exp. 12/2019); Code of Ethical Business Conduct Training (Exp. 12/2019); and Native American Research (Exp. 12/2019)
- Motivational Interviewing, (2008, 2009). Community Partnership of Southern Arizona (Dr. Robert Rhode, MINT certified trainer).
- Attachment and Bio-behavioral Parenting Certification, (2010). Arizona Department of Economic Security- Child Protective Services.
- Nurtured Heart Approach Parenting Certification, (2010). Children's Success Foundation.
- Love & Logic Parenting Certification, (2010-2012). United Way Tucson.

AWARDS AND DISTINCTIONS

- Health Brain Initiative Scholar by the CDC (2015-Present)
- University of Arizona Hispanic Scholarship Fund Scholarship Recipient, (2005-2009).
- League of United Latin American Citizens Scholarship Recipient, (2007-2009).
- Federal Bureau of Investigations Community Service Award, (2005-2007).

TRANSCRIPTS AND REFERENCES AVAILABLE

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L I S A H . K I S E R , C N M , W H N P

EDUCATION

1982-1984	Smith College	Northampton, MA
1984-1986	University of Michigan	Ann Arbor, MI
2001-2003	University of Arizona	Tucson, AZ
2006-2008	Frontier University	Hyden, KY

- B.A., May 1986, English Literature, Phi Beta Kappa. GPA 3.75.
- B.S.N., May 2003, Summa Cum Laude. GPA 4.0.
- M.S.N., Certified Nurse Midwife, June 2008. GPA 4.0.
- Post-Master's Women's Health Nurse Practitioner, August 2008.

TRAINING

- 1996: Certified Doula, Doulas of North America (DONA)
- 2003-2010: Annual continuing competency training, obstetrical nursing, St. Joseph's hospital.
- 2012-2015: Annual continuing competency training, Women's Health Nurse Practitioner, National Certification Corporation. Three-year recertification process completed in 2015.
- 2008-2015: Annual continuing competency training, Certified Nurse Midwife, American Midwifery Certification Board. Seven-year recertification process completed in 2015.
- 2011: Healthright International, volunteer clinician training in physical assessment and documentation of survivors of abuse and trauma.
- 2013: SANE-SART training. Completed a 40 hour online program in sexual assault examination. Additional clinical training included 8 hours of Sexual Assault Evidentiary Exam training and 8 hours of SANE Testimony.
- 2014: Holistic healthcare training. Attended a ten-day intensive training in alternative healing modalities.

PROFESSIONAL EXPERIENCE

- **Clinical Instructor, University of Arizona College of Nursing, Tucson, Arizona, May, 2011-present.** Lecture and provide clinical instruction in both the undergraduate and graduate nursing programs. Clinical instructor and course co-chair for the introductory nursing courses, with a focus on health promotion and disease prevention, nursing assessment and the nursing process, cultural competency, and interdisciplinary coordination of care.
- **Women's Health Nurse Practitioner, St. Elizabeth of Hungary Clinic, volunteer and contract services, 2013-present.** Provided women's health services as a volunteer clinician from 2013-2016. Currently under contract with St. Elizabeth's through the University of Arizona College of Nursing faculty

practice program. Work one day a week in the clinic, caring for patients who are mostly under-insured and uninsured. Focus on providing culturally and linguistically appropriate services to all patients, with an emphasis on health promotion.

- **Per diem Clinician, Planned Parenthood of Southern Arizona, June, 2011-January, 2012.**

Provided women's health and reproductive services at two local Planned Parenthood clinics.

- **Nurse Care Coordinator, El Pueblo Community Health Center, Tucson, AZ. October, 2010 to March, 2011.**

Nurse care coordinator during the opening of the El Pueblo clinic, providing care coordination, case management, triage, and nursing services in a busy primary health care clinic. Worked in a primary health care practice as part of a health care team serving low-income families. The clinic opened in December 2010, and is based on the "medical home" model of care, with an emphasis on health care outreach, continuity of care, and disease prevention.

- **Certified Nurse Midwife, El Rio Community Health Center, Tucson, AZ. September, 2008–October, 2010.**

Full-scope midwife, providing well-women care, antepartum, intrapartum, and postpartum midwifery services. Worked in a federally-qualified community health center serving a diverse population of women and their families, especially low-income women, Hispanic and Native American women, and immigrant women. Monitored and submitted reports for two years on a state grant to improve prenatal care for women without insurance. Attending privileges at Tucson Medical Center, a non-profit community hospital, providing intrapartum, postpartum, and acute care.

- **Staff Nurse, St. Joseph's Hospital, Tucson, AZ, November, 2003- November, 2007.**

Labor, delivery, postpartum, and newborn nursery nurse. Worked in a Level II hospital providing nursing care to laboring and postpartum women; cross-trained to work in the newborn nursery. Special emphasis on serving Spanish-speaking clients, clients with social service issues, and clients choosing natural childbirth.

- **Staff Nurse, Birth and Women's Health Center, Tucson, AZ, June, 2006- June, 2008.**

Labor and postpartum nurse at Tucson's only freestanding birth center. Trained to provide nursing care, supervision, and support to women choosing an out-of-hospital birthing experience.

- **Certified Doula, Doulas of North America (DONA), 1996-2002.**

Prenatal and Birth Doula. Provided prenatal and birth doula services to over 60 clients in six years.

- **Family Caseworker, The Family Place, Washington, DC, 1991-1993.**

Social Worker. Managed a weekly caseload of thirty women, most of whom were Central American refugees. Focused on services for pregnant women and women with children under the age of three.

- **Volunteer, Church of the Brethren, Washington, DC, 1990-1991.**

Soup Kitchen Coordinator. Managed a soup kitchen that fed 300 people daily. Responsible for food procurement, finances, volunteers, and public relations.

- **Volunteer & Staff Member, Witness for Peace, Nicaragua and Durham, NC, 1987-1990.**

Human Rights Worker and Long-term Team Coordinator. Performed human rights work in Nicaragua during the civil war, which included documentation of attacks against civilians, accompanying threatened health care workers, and leading delegations of U.S. citizens. Work in the United States included recruitment, selection, and support of long-term volunteers.

PROFESSIONAL MEMBERSHIPS, LICENSURE, AND AWARDS

- Registered Nurse, licensed in the State of Arizona
- Certified Nurse Midwife, licensed in the State of Arizona
- Women's Health Nurse Practitioner, licensed in the State of Arizona

- Sigma Theta Tau Nursing Honors Society member and board member
- Nurse Practitioners in Women's Health member
- American College of Nurse-Midwives member
- Southern Arizona Advance Practice Nurse-Nurse Practitioner Society member
- National Organization of Nurse Practitioner Faculties member
- 2003 Recipient of the Pearl Parvin Coulter Award for Leadership and Academic Excellence.
- 2013 Recipient of the Mc Gaffic, Monroe, and Rogers Award for Excellence in Teaching.

- 2014 Recipient of the University of Arizona College of Nursing Alumni Association
"Bear Down" Award for nursing service.
- 2014 Recipient of the Rotary International Paul Harris Fellow award for excellence in service.
- 2016 Recipient of the Sigma Theta Tau, Beta Mu Chapter Past Presidents' award for service to the chapter.
- 2016 Recipient of the Tucson's Nurses Week Foundation Fabulous Fifty award.

LANGUAGES

- Read and speak Spanish with proficiency. Eight years of experience using Spanish in the clinical setting.

VOLUNTEER WORK

- Volunteer, Samaritan Patrols, 2004-2007. Helped search and care for migrants in distress in the desert.
- Volunteer, Southern Arizona Humane Society, January 2010-2015. Provided in-home foster care for sick and vulnerable animals.
- Volunteer and Fellow, Everytown for Gun Safety, August 2012-present. Work on national gun violence reduction to address the national epidemic of gun violence. Meet with and work with legislators at the local, state, and national levels, with a focus on prevention and policy formation.

- Team Leader, Trauma Prevention and Healing Techniques Workshops, Rotary International, Lima Peru, 2014. Travelled to Lima, Peru with a Rotary International health team and helped lead five, one-day trainings in Lima, Peru neighborhoods directly impacted by trauma and violence. Helped provide training to over 250 participants.
- Volunteer, Clinica Amistad, 2016. Provide women's health services at a Tucson free clinic for patients without insurance. Helped to initiate a women's health program at the clinic.
- Volunteer, marathon runner, Dylan's Wings of Change, 2015-2016. Ran the New York City Marathon as part of the Dylan's Wings of Change team, raising \$3000 in support of the organization's work for autism education and services.
- Volunteer, cyclist, Ben's Bells, 2014-2015. Cycled with the Ben's Bells team to raise funds for the organization to promote kindness and peace education for schoolchildren.

MEETINGS ATTENDED

2010 Contraceptive Technology conference, San Francisco.

2012 Women's Mental Health Symposium, Tucson, Arizona

2013 Women's Mental Health Symposium, Tucson, Arizona

2013 Primary Care Updates for Nurse Practitioners, Tucson, Arizona

- 2014 Women's Mental Health Symposium, Tucson, Arizona
2014: Southern Arizona Nurse Practitioner's annual conference.
- 2015: Integrative nursing training, University of Arizona College of Nursing.
- 2015: Fenway Institute training on achieving health equity in LGBTQ populations.
- 2015: Southern Arizona Nurse Practitioner's annual conference.
- 2016: Arizona Nurse's Association conference on evidence-based practices for clinical nursing instruction.
- 2016: National Practitioners of Women's Health conference in women's sexual health.

COMMITTEES AND OTHER

2011-present: BSN honors dissertation committee member and committee chair

2011-present: University of Arizona College of Nursing Advance Practice committee

2012-present: Interprofessional Education and Practice facilitator and committee member

2013-present: University of Arizona College of Nursing Admissions and Progression committee

2013: University of Arizona LGBTQ Strategic Planning committee

2013-present: Sigma Theta Tau Board Member

2015-present: Integrative Nursing Faculty Fellowship advisory board member

2016: Global Health Initiatives committee member

REFERENCES

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