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Increasing Provider Competency: A Quality Improvement Project Applying Best Practice Protocol for Contraception Counseling and LARC Insertion to Females of Reproductive Age in Primary Care

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Increasing Provider Competency: A Quality Improvement Project Applying Best Practice
Protocol for Contraception Counseling and LARC Insertion to Females of Reproductive Age in

Primary Care

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Abstract

Background: Long-acting reversible contraception (LARC) including intrauterine devices (IUDs) are safe, effective, and economical methods of preventing unintended pregnancy and their associated poor outcomes. Barriers to use, such as lack of awareness, knowledge, and provider competency in counseling and insertion can be mitigated. The Doctor of Nursing Practice (DNP) student undertook this quality improvement (QI) project to explore the benefits of IUDs, mitigate identified barriers, and to improve community health. *Purpose:* The purpose of the QI project was to investigate and create best-evidence protocols for counseling patients to select the most effective forms of contraception and to educate primary care providers in proper insertion techniques for IUDs. *Methods:* The QI project included small-group training in best-evidence counseling strategies and IUD insertion to primary care providers (PCPs), including demonstration, hands-on practice, role-playing, and teach-back using training devices. Pre- and post-training surveys and open-ended questionnaires were used to analyze provider perception of competence at both counseling and insertion. *Results:* Providers expressed comfort with contraception counseling before and after training. Providers did not feel ready to begin inserting IUDs after training on a simulation model. *Interpretation/Discussion:* Despite feeling very comfortable with effective contraception counseling and practicing with training devices, providers are unwilling to insert IUDs without hands-on training on actual patients. Opportunities for this training is limited in the area, which is preventing providers from offering IUD insertion service. *Conclusion/Implications:* By promoting the superior effectiveness of IUDs over less effective contraception, and by increasing access to LARC, PCPs can help to prevent unintended pregnancy.

Keywords: Intrauterine device, pregnancy, unplanned, long-acting reversible contraception, unintended pregnancy, primary care, counseling.

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Introduction

The United States (U.S.) has the highest unintended pregnancy rate of all developed countries, up to 40% higher than in Western Europe (Finer & Zolna, 2016; Peipert, Madden, Allsworth, & Secura, 2012). The unintended pregnancy rate in 2011 was 45% of all pregnancies, which equates to 2.8 million pregnancies a year. Evidence suggests that females who have access to and choose highly effective contraception (ie. IUDs and hormonal implants) over less effective options (i.e., all other forms of birth control) have a much lower risk of experiencing unintended pregnancy (Birgisson, Zhao, Secura, Madden, & Peipert, 2015; De Bocanegra, Reidel, Menz, Darney, & Brindis, 2014; Finer & Zolna, 2016; Gibbs, Rocca, Bednarek, Thompson, Darney & Harper, 2016; Goldthwaite, Duca, Johnson, Ostendorf, & Sheeder, 2015; Mosher, Jones, & Abma, 2012; Ott & Sucato, 2014; Peipert et al., 2012; Thompson, Rocca, Kohn, Goodman, Stern, Blum, Speidel, Darney & Harper, 2016).

Background

Although long-acting reversible contraception (LARC) including intrauterine devices (IUDs) are safe, effective, and economical methods of preventing unintended pregnancy and their associated poor outcomes, females of reproductive age in the U.S. have the highest unintended pregnancy rate of all developed countries. Barriers to use, such as lack of awareness, knowledge, and provider competency in counseling and insertion can be mitigated (Birgisson et al., 2015; De Bocanegra et al., 2014; Finer & Zolna, 2016; Fox & Barfield, 2016; Goldthwaite et al., 2015; Harper et al., 2015; Madden et al., 2013; Peipert et al., 2012; Thompson et al., 2016).

It is important to increase provider awareness that almost all women are appropriate candidates for IUDs, including postpartum women, nulliparous women, women who are post-abortion, and adolescent females.

Despite the recent decrease in the rate of unintended pregnancy, statistics for U.S. adolescent females are particularly alarming. There are about 750,000 pregnancies in adolescent females ages 15-19 each year (Ott & Sucato, 2014). Ott and Sucato (2014) assert that eighty-two percent of these pregnancies are unplanned, fourteen percent of all known adolescent pregnancies result in miscarriage, 27% end in abortion, and 59% culminate in a live birth. Eighteen percent of all American females give birth before their 20th birthday (Ott & Sucato, 2014). Ott and Sucato (2014) go on to suggest that the high rate of unintended pregnancy in adolescent females may be due to the fact that in a nationally-representative sample of 15 to 19 year olds, only 28% reported using any contraception in the last three months. In this sample, the majority of adolescents who did report using contraception used the contraception with the least effective typical-use rates (condoms and withdrawal). Finer and Zolna (2016) found that LARC-use in U.S. females increased from 4% to 12% between 2007 and 2012, which they cite as one of the probable reasons for the subsequent decrease in unintended pregnancy rate.

Because of the higher costs associated with adverse outcomes of unintended pregnancies, various short-term cost estimates of unintended pregnancies and births in the U.S. range between \$11.1 and \$11.4 billion per year (Mosher et al., 2012). Women who are at higher risk of adverse outcomes secondary to unintended pregnancy include young women and adolescents, women of low socioeconomic status, women with low educational attainment, women who cohabit with their partners, non-nulliparous women, women without specific religious affiliation, and non-white women (Finer & Zolna, 2016; Fox & Barfield, 2016). Adverse outcomes of unintended

pregnancy include maternal death, abortion, fetal demise, stillbirth, preterm birth, low-birth weight infants, and increased risk of physical and mental health problems (Birgisson et al., 2015; Center for Disease Control [CDC], 2015; Finer & Zolna; Goldthwaite et al., 2015; Peipert et al., 2012).

Multiple factors contribute to the lack of access to LARC. Many providers are unaware which patients are appropriate for LARC, or have not received training in LARC insertion (Peipert et al., 2012; Gibbs et al., 2016). Oftentimes, providers do not utilize best-practice counseling strategies when discussing contraception with their patients (Gibbs, 2016). LARC can be very expensive, and there is often a prohibitive initial cost which patients are unwilling or unable to pay (Goldthwaite et al., 2015). Finally, many practices do not stock the devices onsite which results in long wait times and multiple trips to the office and pharmacy (de Bocanegra et al., 2014).

Healthy People 2020 panel members recognized these issues and have included a major objective of increasing intended pregnancy rates to 56% of all pregnancies by increasing access to all contraceptives, especially LARC, including IUDs (Office of Disease Prevention and Health Promotion [ODPHP], 2016). By improving awareness and education, and by employing effective counseling strategies, primary health care providers can increase patient use of effective contraception, thus decreasing the rate of unintended pregnancy rate and improving health outcomes within their patient communities.

Problem Statement

Increased risk of unintended pregnancies in females of reproductive age in the U.S. is indicated by the unintended pregnancy rate in the U.S. being the highest of all developed countries, and results from barriers such as (1) lack of access to the most effective contraceptive

methods including LARC, such as intrauterine devices (IUDs) and hormonal implants, (2) deficiency in provider knowledge of which patients can benefit from LARC and how to insert them, (3) inadequate patient counseling and education, (4) prohibitive initial cost, and (5) the lack of onsite availability of the devices.

Gap Analysis

While preventing unintended pregnancies is a high priority in *Healthy People 2020*, barriers to LARCs remain (CDC, 2015). The initial cost can be prohibitive for uninsured women (Goldthwaite et al., 2015). Additionally, many primary care providers have not received education in LARC counseling or insertion, so they do not offer the service (Peipert et al., 2012). Even when providers do offer counseling, many of them do not suggest LARCs to adolescents or nulliparous women, despite the effectiveness and safety of these methods in these populations (Gibbs et al., 2016).

Another barrier to the use of LARC is the widespread lack of onsite accessibility to the devices (De Bocanegra et al., 2014). Many clinical sites do not keep the devices stocked. The women receive their counseling and have to pick up the prescription at the pharmacy then return to the clinic for insertion at a later date, or even be referred to a different site for insertion. This is an inconvenience that may discourage women from choosing LARC.

The site for this DNP project is a primary care office located in a rural mountainous area designated as a Medical Home with a current push for wraparound integrative care. Most of the practitioners in the office see patients from birth to death, although one provider does not see patients under the age of thirteen. All providers see women of childbearing age. For family planning, women can get prescriptions for oral contraceptives or referrals to Womens Wellness, the area OB/GYN specialty clinic. It is not unusual for patients to have to wait up to a month for

an appointment with a specialist. Because this is a rural, poor, mountainous area with hazardous driving conditions in the winter, and patients often have to travel a far distance to see a provider, making multiple appointments for one contraceptive is a hardship for many patients.

The project site has one physician who is trained in the insertions of the Mirena and the Paragard IUDs, but the other providers had not had any training prior to this QI project. The providers also had not received any formal education on how to effectively counsel patients regarding contraception to maximize effectiveness of preventing unintended pregnancies. In the words of one provider, “I think I need to learn a new script for encouraging IUDs because I have never had a teenager interested in getting one.” By educating providers on LARC use, insertion, and counseling strategies, the providers will be able to increase awareness and promote the use of the most effective contraception to their patients.

Review of the Literature

A comprehensive search of the literature for unintended pregnancy and long-acting reversible contraception evidence included the following databases: PubMed of the National Library of Medicine, Cochrane, Cumulative Index of Nursing and Allied Health Literature, UpToDate, Google Scholar, and Centers for Disease Control and Prevention. The Medical Subject Headings (MeSH) terms used for the PubMed search were *intrauterine device (IUD)* and *pregnancy, unplanned*. Other search words used were *long-acting reversible contraceptives (LARC)*, *unintended pregnancy*, *adolescent*, and *primary care*. Inclusion criteria included articles published in the English language, peer-reviewed articles, randomized controlled trials (RCTs), and only articles published since 2012. Retrieved from the above search were 508 articles. Exclusion criteria included articles that reviewed products, articles which displayed a financial conflict of interest, and articles rated below a quality 1B on the Johns Hopkins Nursing

Evidence-Based Practice (JHNEBP) Rating Scale. Articles with a 1B rating are either RCTs or meta-analyses of RCTs, and have at least a *Good* rating for the quality of the evidence. To have a *Good* rating for evidence quality, the research must have an adequate sample size, reasonably consistent results, a control group, evidence of strengths and weaknesses within the studies, and fairly definitive conclusions. Recommendations from the American College of Obstetricians and Gynecologists remained included, as they are considered to be current best practice. Healthy People 2020 remained included because it contains national goals. One article was found in multiple searches. Fifteen articles were left to be examined after the exclusion.

Evidence Based Practice: Verification of Chosen Option

Long-acting reversible contraceptives have many benefits over other forms of contraception. Oral birth control pills have an 8-9% failure rate with typical-use, while LARC are 20% more effective than the pill, the patch, and the vaginal ring (Level 1A) (Peipert et al., 2012). Indeed, the Mirena and the copper IUD are the most effective contraception available (Level 1A) (Finer & Zolna, 2016). Because once the LARC are inserted the patient does not need to remember to take a daily pill or change a weekly patch, and can engage in spontaneous sexual intercourse without needing extra equipment, their perfect- and typical-use rates are the same (Level 1A) (Birgisson et al., 2015).

While the upfront cost can be a barrier, when measured against the entire duration of use, LARC are the most cost-effective contraceptive method available. Because the Affordable Care Act (ACA) mandates that insurance companies provide coverage to include LARC, they should be more easily accessible for patients (Level 1A)(Fox & Barfield, 2016). Additionally, LARC are appropriate and safe to use in nearly all populations, including adolescents, nulliparous women, parous women, women who have just had abortions, and postpartum women (Level 1A)

(Gibbs et al., 2016). Continuation rates are indicators of satisfaction with the method, and women of all groups have high continuation rates with LARC. In adolescent females, the continuation rate for hormonal IUDs is greater than 75% at one year (Level 1A) (Diedrich, Klein, & Peipert, 2013; Ott & Sucato, 2014). Finally, it is possible that women who choose LARC over permanent sterilization experience less regret over their decision (Finer & Zolna, 2016).

Numerous studies have shown that increased use of LARC is associated with lower rates of unintended pregnancy, especially in teenagers, low-income women, racial and ethnic minorities, and women with low educational attainment (Level 1A) (Birgisson et al., 2015; CDC, 2015; de Bocanegra et al., 2014; Finer & Zolna, 2016; Fox & Barfield, 2016; Gibbs et al., 2016; Goldthwaite et al., 2015; ODPHP, 2016; Ott & Sucato, 2014; Thompson et al., 2015). Unintended pregnancies appear to be related to an increased risk of adverse pregnancy outcomes, such as preterm birth and low birthweight babies (Goldthwaite et al., 2015). Unwanted or mistimed pregnancies may increase the risk for adverse maternal and infant outcomes, as they are associated with delayed or absent prenatal care, lack of tobacco and alcohol cessation, and lower rates of breastfeeding (Level 1A) (Mosher et al., 2012). When providers employ effective contraceptive counseling strategies, patients may be more likely to choose LARC (Madden, Mullersman, Omvig, Secura, & Peipert, 2013). When LARC are chosen as the method of contraception, women are generally satisfied with them, as evidenced by their high continuation rates (Diedrich, Klein, & Peipert, 2013; O'Neil, Peipert, Zhao, Madden, & Secura, 2013; Peipert et al., 2012; Teal & Romer, 2013).

Awareness, education, and counseling.

Provider awareness of the benefits of LARC is essential for increasing their use (de Bocanegra et al., 2014; Gibbs et al., 2016; Thompson et al., 2016). Many primary health care providers are not aware that IUDs are safe and appropriate for use in adolescent females, nulliparous women, post-partum women, and women who have just had an abortion (Gibbs et al., 2016; Thompson et al., 2016). Additionally, many primary health care providers are not trained in the insertion of LARC (Thompson, 2016).

Educating women on all types of available contraception has been shown to increase the use of LARC (Birgisson, 2015; Gibbs et al., 2016). Employing a tiered approach emphasizing the most effective contraception methods first when counseling women has been recommended for encouraging the use of LARC (Ott & Sucato, 2014). Considering other uses for LARC, such as relief from dysmenorrhea or heavy menses with the hormonal IUD, or the superior effectiveness of the copper IUD for emergency contraception may increase the use of LARC as well, and ultimately prevent unintended pregnancies.

Special considerations for adolescent patients include ensuring patient-provider sexual health-related confidentiality so that patients are not worried about their parents finding out about their sexual activities and feel free to discuss their sexual histories with their provider (Ott & Sucato, 2014). Motivational interviewing is an important counseling technique to enable adolescent females to determine their path to achieving their life goals. For example, if a patient is engaging in unsafe sexual practices, but plans to attend college, motivational interviewing using open-ended questions and providing a safe, non-judgmental environment can help foster behaviors that will more likely help her reach her own goals. Empathy, active listening, waiting

for the patient to reach her own conclusion rather than delivering a lecture, and being supportive are imperative aspects of this strategy (Ott & Sucato, 2014).

Discussion

Due to the superior effectiveness, safety, and ease of use when compared to other contraception, increasing the use of LARC may improve population health by postponing age of parity, promoting healthy birth spacing, preventing unintended pregnancy, decreasing abortions, and empowering women to have control over the size of their families (Birgisson et al., 2015; CDC, 2015; De Bocanegra et al., 2014; Finer & Zolna, 2016; Gibbs et al., 2016; Goldthwaite et al., 2015; Mosher et al., 2012; ODPHP, 2016; Ott & Sucato, 2014; Peipert et al., 2012; Thompson et al., 2016). By eliminating barriers to use, including educating the providers, instituting appropriate methods of counseling to patients, and increasing access to the devices, women can reap the benefits of these contraceptive methods. Numerous studies have shown the relationship between removing barriers and increased utilization of LARCs in women of all ages (Birgisson et al., 2015; CDC, 2015; De Bocanegra et al., 2014; Finer & Zolna, 2016; Gibbs et al., 2016; Goldthwaite et al., 2015; Mosher et al., 2012; ODPHP, 2016; Ott & Sucato, 2014; Peipert et al., 2012; Thompson et al., 2016). This, in turn, has demonstrated a decrease in adverse health outcomes (Birgisson et al., 2015; CDC, 2015; Finer & Zolna, 2016; Goldthwaite et al., 2015; ODPHP, 2016; Peipert et al., 2012). Population health may be improved by educating health care providers on which patients can benefit from IUDs and how to insert them, providing accurate counseling to patients, making the devices and insertions more affordable, and keeping the devices stocked onsite to promote immediate use.

Evidence-Based Practice Model

According to Bonnell (2014), it is essential to articulate the theoretical framework used to develop QI projects, as theoretical frameworks contribute to the growth of the nursing profession. The framework provides a foundation, direction, and boundaries for the QI project. This QI project was undertaken using the National Strategy for Quality Improvement in Healthcare (NQS) framework, which includes three overarching goals: (1) better care; (2) affordable care; and, (3) healthy people and communities (AHRQ, n.d.). To reach these goals, the framework focuses on six priorities, four of which steered this project: (a) engaging people in their own care; (b) promoting good communication and coordination; (c) promoting effective prevention and treatment; and (d) making quality care affordable. This QI project utilized two of the nine *levers* outlined by the NQS framework: i) Learning and Technical Assistance; and ii) Consumer Incentives and Benefits Design.

One goal of this QI project was to provide better care by providing person-centered, reliable, accessible, and safe care. By expanding patients' options for contraception by using evidence-based best practice protocols for counseling and insertion of the most effective methods, this QI project increased access to reliable and safe contraception, which will enable patients to make the very best decisions for themselves. Women who have access to and utilize reliable and safe contraception have less health care costs, as they are able to prevent unintended pregnancy. Additionally, health care received from a FQHC Medical Home is generally more affordable than seeking care from a specialist. The health of people and communities was improved by encouraging established interventions to address all manner of health determinants. In this case, offering the most effective options for contraception can help to prevent unintended pregnancy, thereby improving the health of individual patients and the community.

Control over reproduction is essential to one's autonomy. By increasing access to LARC, providers can engage people in their own care by offering education and the opportunity for discussion about effective family planning strategies. When providers are trained in the counseling and insertion of LARC, they are able to empower patients to make best decisions for themselves and their families about when and if to get pregnant. This is an example of the Consumer Incentives and Benefit Design lever, which helps patients adopt healthy behaviors and to make informed decisions (AHRQ, n.d.).

When helping patients to make informed decisions, it is imperative in high-quality provider-patient relationships for providers to give accurate and thorough information about the patients' health care options. Communicating proactively by discussing family planning prior to an unintended pregnancy will maximize health outcomes because patients will have control over reproduction, financial planning, and will be able to coordinate adequate prenatal care if they do decide to get pregnant.

Educating providers on the use and insertion of LARC, and on effective counseling strategies can promote effective prevention. Women who receive thorough counseling and access to LARC are more apt to choose them, and less likely to experience unintended pregnancy. Effective pregnancy prevention may reduce abortion rates and other adverse outcomes. This part of the QI project aligns with the Learning and Technical Assistance lever, which asks stakeholders to foster learning environments that offer training, resources, tools, and guidance (AHRQ, n.d.).

By training primary care providers to provide access to LARC, women can receive the devices in the primary care office, rather than being required to see a specialist. This can save patients money in the short-term. Preventing unintended pregnancy can reduce cost in the long-

term by preventing abortions, preventing adverse health outcomes for the mother, and preventing adverse health outcomes for the child.

Goals/Objectives/Expected Outcomes

It was important to consider expected outcomes prior to starting the QI project, because meeting expected outcomes is a reliable indicator of success when implementing a QI project (Bonnell, 2014). As the purpose of this QI project was to increase provider awareness, education, and competency in effective counseling strategies and IUD insertion, it was important to evaluate education and changes in provider perception of knowledge, competency, and subsequent changes in practice.

Table 1

Goal 1: LARC insertion demonstration video will be selected – PRE-TRAINING

Objective	Expected Outcome	Results
Insertion instruction videos provided by the pharmaceutical companies will be identified and the link to online videos demonstrating the correct insertion procedures for both the hormonal and copper IUDs (Mirena, Kyleena, and Paragard) will be provided to participating health care providers	<ol style="list-style-type: none"> 1. Videos will be identified by September 1, 2017 2. Videos will be watched by 75% of the providers by October 1, 2017 	<ol style="list-style-type: none"> 1. Met 2. Met
The videos will be reviewed by the providers in the SJCHC clinic.	<ol style="list-style-type: none"> 1. The approval rating of the providers will be at least 75% as measured by a post-education survey question 	<ol style="list-style-type: none"> 1. Met

Table 2

Goal 2: Health care providers will benefit from the viewing of the video and will keep it as an educational tool - TRAINING

Objective	Expected Outcome	Results
Providers will use the videos for initial and refresher training as needed	<ol style="list-style-type: none"> 75% of providers will demonstrate competence with the procedure in a simulation and will express readiness to insert devices in patients by October 15, 2017. The video links will be kept with the educational supplies and will be reviewed by providers as necessary, which will be evaluated qualitatively one month after the training 	<ol style="list-style-type: none"> Partially Met Met

Table 3

Goal 3: A protocol for contraception counseling will be produced – PRE-TRAINING

Objective	Expected Outcome	Results
A protocol consisting of best evidence-based strategies for contraception counseling will be presented to the providers in an education session	<ol style="list-style-type: none"> 75% of the providers will demonstrate best-evidence-based counseling strategies by October 15, 2017 through a role-playing activity 	<ol style="list-style-type: none"> Met
Providers will use the protocol for initial and refresher training as needed	<ol style="list-style-type: none"> The written protocol will be kept with the educational supplies to be reviewed by providers as necessary, which will be evaluated qualitatively one month after the training. 	<ol style="list-style-type: none"> Met

Project Design

The DNP project was a Quality Improvement (QI) project plan with an educational evaluation design. Methods included a pre- and post- survey of providers and small group discussions with providers.

Methods

The purpose of the QI project was to increase access to long-acting reversible contraception in a primary care office by increasing provider awareness of effective contraceptive methods, providing strategies for counseling to empower females to choose the most effective contraception, and training in the insertion of the devices. A four-pronged approach was used to accomplish this: (1) awareness; (2) counseling; (3) training; and, (4) sustainability.

Awareness

The DNP student offered education to the participating providers in this office in LARC use, including which devices are appropriate, safe, and effective for different populations. Education included Power Point slide shows, lecture, and roundtable discussion. Emphasis was placed on the most effective options for birth control, LARC, with special consideration given to IUDs. Because these are appropriate for almost all populations of women, they are easily stored, and can be inserted in an office visit on the same day they are requested by the patient.

Counseling

The DNP student coached the providers in the most effective evidence-based ways to counsel patients to enable the patients to choose the most effective forms of contraception. This involved lecture, visual aids, and role-playing. Counseling methods included emphasized the most effective forms of contraception first, and offered the other options in decreasing order of

efficacy. It was also imperative to make this intervention patient-centered, by prioritizing effectiveness, convenience, and patient preference while offering education.

Training

The DNP student trained the four providers who do not already insert IUDs in their proper insertion technique using a simulation model. This involved lecture, demonstration, and teach-back. Providers learned proper insertion techniques and demonstrated competency with three types of IUDs, including Mirena, Kyleena, and Paragard. These three devices were selected because they are the types available from the two pharmaceutical companies that cater to the practice site.

Sustainability

The DNP student created an educational tool describing insertion and counseling strategies which was left behind at the clinic after the training was complete to foster sustainability. As LARC continue to become more and more popular with increased awareness, providers can expect to be asked to insert these devices more often. As new providers come into the practice, they will need to know how to provide this service for patients.

Project Site and Population

The site for this QI project was a primary care clinic in St. Johnsbury, Vermont, the St. Johnsbury Community Health Center (See Appendix A). This clinic is a Federally Qualified Health Center (FQHC), designated as a medical home. There are currently six providers employed there, including two physicians and four advanced practice nurse practitioners (APRNs). One physician was already trained in IUD insertion prior to this QI project. The other providers expressed eagerness to receive the training and to begin providing these services.

Other stakeholders included the administration, the nurses within the clinic, the chronic care coordinator, the office staff, and patients.

Five of the providers in this practice see patients from birth to death. One APRN sees patients over the age of thirteen. All providers see women of childbearing age. The providers work three to four days a week, staggered, so that the office is open from 7 am to 5 pm Monday through Friday. Each provider works with one nurse, and each provider-nurse team sees 12-22 patients per day. There is also a nurse manager, a chronic care coordinator, a triage nurse, and a float nurse who does nurse visits and assists to keep the office flowing smoothly, and three behavioral health counselors.

Setting Facilitators and Barriers. Facilitators at this site included the administrators and providers who expressed their commitment to this QI project. While the office policy is to refuse to meet with all pharmaceutical representatives, the administration allowed the office manager and providers to meet with salespeople who distribute IUDs so as to enable the office to begin prescribing and inserting the devices. All providers within this clinical site expressed eagerness to receive training and interest in effective counseling strategies so that they could begin providing these services to their patients.

The major barrier foreseen for this project was the procurement of the devices. Prior to the initiation of this QI project, the site was unable to keep IUDs stocked in the office due to lack of funding. The procurement process took several steps of logistical planning, and it is possible that the complexity of the process resulted in incomplete follow-through for some insertion procedures.

Implementation

Five of the six providers agreed to be trained in contraception counseling and IUD insertion. The providers met for training during reserved lunch-time education sessions, or when they had a free time during the day. The DNP student was flexible to provide training for each provider when it was convenient for them. After presentations by the DNP student, providers discussed the benefits of contraception in small groups to ensure universal awareness and knowledge. The DNP student developed a toolkit describing the insertion procedures and pearls for effective counseling to leave behind at the office after completion of the project. The video links identified for the insertion-teaching were left behind as refreshers for existing providers and for teaching new providers as they are hired.

Measurement Instruments

In order to measure the outcomes of this DNP project the following instruments were used: pre- and post-survey of providers, and small group discussions with providers (See Appendices B and C). The four providers who agreed to take part in this QI project rated their self-perceived competence on best practice counseling strategies and insertion technique for each type of IUD being used in this project on a 5-point Likert Scale before and after the training. Providers were also asked to describe qualitatively any questions or concerns they may have had about the training. Variables measured include:

Provider comfort with inserting IUDs. This refers to a provider's level of comfort with the insertion of Mirena, Kyleena, and Paragard IUDs. It was measured by asking three questions, one for each type of IUD. Responses range from 1-5 on a 5-point Likert scale, where 1 corresponds to *strongly disagree*, 2 corresponds to *disagree*, 3 corresponds to *neutral*, 4 corresponds to *agree*, and 5 corresponds to *strongly agree*.

Provider knowledge. This refers to a provider's perception of their knowledge regarding the indications for IUD use, and which patients can benefit from them. It was measured by asking two questions. Responses range from 1-5 on a 5-point Likert scale.

Comfort with counseling. This refers to a provider's perception of their ability to provide effective contraception counseling that will empower patients to choose the most effective methods. It was measured by asking one question. Responses range from 1-5 on a 5-point Likert scale.

Competency

One physician was willing to train the DNP student in IUD insertion with the training kits, and the other four providers agreed to be trained by the DNP student. All providers expressed willingness to learn strategies for contraception counseling to promote the patients' ability to choose the most effective types of contraception. Providers met in groups to role-play contraceptive counseling to maximize efficacy in counseling strategies.

IUD insertion videos provided by the pharmaceutical companies were used for training, along with a checklist of each step for the Mirena, Paragard, and Kyleena IUDs. The DNP student checked off each step of insertion as the provider performed with the simulation kits, and provided coaching as needed. Providers were able to practice until they expressed comfort with the procedure, and were able to complete each step of the insertion process on the checklist.

Data Collection

Pre- and post-training surveys asking about provider comfort with the insertion procedure and the counseling protocol were filled out by the four providers. The surveys included Likert scale responses from *strongly agree* to *strongly disagree* as well as open-ended questions intended to elicit qualitative data. Small groups and role-playing were used to elicit provider

feedback, which helped elucidate any issues, concerns, questions, or barriers regarding the interventions and application to practice.

The DNP student kept a journal during the training process and throughout the evaluation phase. Each provider was trained at a different time or in groups, depending on what was most convenient. The following steps were included with each training:

1. The provider completed the pre-education survey.
2. The DNP student then provided the IUD education immediately.
3. The provider practiced counseling role-playing with the DNP student or in small groups.
4. The provider completed the post-education survey (Appendix B) at the end of the education.
5. The provider completed the survey again one month later.
6. The Power Point presentation used in the training was e-mailed to the office manager and to each of the participating providers immediately after the training.

Data Analysis

Quantitative

The DNP student attempted to use the Wilcoxon-Signed-Ranks test, which is a non-parametric test that can be used with a small sample size. The DNP student also requested assistance from the UMass Statistical Consulting and Collaboration Services, that replied,

We took a look at that data that you sent us using two different approaches – a confidence interval-based approach and a significance testing-based approach - to examine the effect of the training you led. (We should note that the Wilcoxon signed ranks test that you brought to us is an appropriate

test for this type of data, but the large sample approximation is not appropriate for this small of a sample). The confidence interval-based approach treats the effect of the training as a binary result: each provider either said that they felt more comfortable/understood better after the training or they said that they felt the same or less comfortable/understood worse. We then construct a Clopper-Pearson interval (a type of binomial proportion confidence interval) that gives us bounds on the probability that the training is successful (makes providers feel more comfortable/understand better) based on the data.

The one downfall to this approach is that we lose information about the size of the difference in each provider's pre-treatment and post-treatment responses, which might be good information about how effective the training is. The Fisher-Pitman permutation test (a type of significance test) does incorporate the size of differences and looks to see if there are any differences between two samples (namely between the means and variances of each question).

However, each approach fails to provide much, if any, evidence that the treatment has a positive effect. We are also choosing not to report the specific results of the confidence intervals or the significance tests because we think that your analysis may benefit from a non-quantitative approach. To that point, you mentioned that four of the five providers went through the training session together (while one was trained on their own) and that one or two of the providers may have filled the Likert-scale questions in the

wrong order, both of which may cast doubt on a formal statistical approach, especially one with a small sample size.

Instead, we recommend some sort of qualitative case study of each provider. Some summary statistics of this survey could be included (ex: 4/5 providers said they felt more comfortable understanding which women are candidates for IUDs). But we would not recommend that the results of the survey be front and center. Even if all 5 responses for any given question indicated that there was an improvement, the small sample size would still prohibit you from claiming that you have any evidence of the training's effectiveness. Moreover, we did a little background reading that suggested there is a precedent for using qualitative interviews to study experiences of contraceptive counseling (M. Lavine, personal communication, March 30, 2018).

Qualitative

Pre-training qualitative data was used to ensure that all providers' questions and concerns were addressed during the training. Post-training qualitative data was used to evaluate strengths and weaknesses of the training so that improvements can be made and any gaps in knowledge can be addressed. A comparative analysis was done through the distillation of the DNP student's observational data and notes from the journal entries to identify common foci.

Results/Outcomes

Pre-Training

All five participating providers expressed the desire to learn how to insert IUDs. One provider also stated that she would like to better understand the differences between the types of

IUDs and the indications for each type. Two providers did not endorse any concerns prior to training. Two providers reported being concerned about complications and adverse effects including perforating the uterus, and one provider stated that she was concerned about being able to get hands-on training with actual patients. All five providers reported agreeing or strongly agreeing that they felt comfortable counseling women on their most effective contraceptive options. All of the providers stated they strongly disagreed or disagreed that they felt comfortable inserting any kind of IUD. Two providers felt neutral about knowing which IUDs were appropriate choices for different patients, two agreed that they understood which IUDs were appropriate choices for different patients, and one provider strongly agreed that she understood. All providers agreed that they understood the indications for IUDs.

Post-Training

Post-training surveys were passed out to the providers both immediately after the training, and one month after the training. The surveys were meant to evaluate providers' comfort with counseling and insertion after the training to see if the training was effective in increasing their comfort. Providers were also asked what they most appreciated about the training, what aspect of the training needed improvement, and to describe any thoughts, concerns, questions, or comments they had. Those qualitative data could be used to individualize ongoing training.

Immediate Post-Training

One provider agreed and four providers strongly agreed that they felt comfortable offering contraception counseling that enable their patients to choose the most effective options. One provider disagreed and three providers felt neutral about their ability to insert IUDs into patients, and one providers agreed that she felt comfortable inserting Kyleena IUDs only. All

five providers strongly agreed that they felt comfortable in their understanding of which IUDs were appropriate for different patients and the indications for each type of IUD.

All five providers answered that the parts of the presentation they felt were the most helpful were the hands-on practice with the device trainers and the insertion videos. All five providers stated that no aspect of this training needed improvement, although two providers expressed their desire to get hands-on practice inserting devices into actual patients.

One-Month Post-Training

Two providers did not return the one-month post-survey. The three providers who did return the surveys unanimously endorsed both needing insertion re-training via video and requesting hands-on training with patients before feeling comfortable offering IUD insertion in their own practice.

Cost-Benefit Analysis/Budget

There was no cost associated with obtaining the training kits, as the pharmaceutical companies provided them for free (See Appendix D for a full Cost-Benefit table). All providers are salaried, so training was not an additional cost.

Out-of-pocket expenses for the DNP student included minimal travel expenses and physical material expenses, such as paper and copying. The total cost of this QI project was about \$33.00. The costs, funded by the DNP student, were \$8.55 for a ream of colored paper, \$6.20 for a pack of pens, and about \$18.00 in travel expenses for six round-trips to the clinical site.

Timeline

Internal Review Board (IRB) approval was received in September, 2017. Training was conducted between October, 2017 and February, 2018. Data collection was conducted until

March 1, 2018. Post-education testing and analysis occurred starting February 1, 2018, and the DNP student provided the practice with a toolkit outlining the correct insertion procedures as well as tips for successful counseling. The DNP student followed up with the providers in March to confirm understanding of the process and offer refreshers if requested. The project was submitted for approval on April 20, 2018, and was presented to the stakeholders at SJCHC on April 26, 2018 (See Appendix E for a full table of the timeline).

Ethics and Human Subjects Protection

The University of Massachusetts, Amherst (UMass) IRB reviewed the project protocol and determined that because this project involved provider participation only, it did not qualify as human subjects research (See Appendix F). All information collected as part of evaluating the impact of this project from the providers involved is described in the aggregate only, and does not include any potential identifiers. Each provider who participated in this educational project was assigned individual identification numbers. The list of participating providers and their identifying numbers was kept in a locked filing cabinet, only accessible to the DNP Project mentor, Pam Dearborn, who is the practice manager.

Project Discussion

Most of the objectives of this DNP project were met. Devices and insertion instruction videos were obtained from the pharmaceutical company and shared with the providers. The providers approved of the videos and the hands-on training with simulation models. The devices, videos, and written protocols were developed into a tool kit and are now included in the rest of the educational supplies at the practice. Providers demonstrated competence and expressed comfort with utilizing best-practice counseling strategies. While providers demonstrated competence in insertion technique using simulation models, they still expressed

unreadiness to begin offering IUD insertion to patients without practice in a live setting. While providers lack the desired training to begin inserting IUDs, this DNP project did help motivate the individuals in the practice to get closer to the goal of providing this service to patients.

Initially, the project site had difficulty in obtaining IUD devices to be used for same-day insertion. By working with the pharmaceutical representative and various state health organizations, SJCHC was able to purchase a few devices at bulk prices to have on hand for when patients request them. As patients ask for them, the office manager expects to be able to replace them and keep them stocked.

In an attempt to meet the providers' stated needs, the Power Point presentation used during the initial training, complete with links to the insertion videos, was re-emailed to the office manager and to each provider for them to keep. The DNP student also contacted the Women's Wellness Center and the Planned Parenthood office in town to see if providers there would be willing to precept the SJCHC providers for a day to teach them how to insert IUDs. Managers at both sites stated that they could not teach outside providers how to do this, but that they were willing to take urgent referrals from SJCHC. The providers at SJCHC are unwilling to start inserting IUDs without hands-on practice on actual patients, so the lack of practical opportunity is a barrier in this setting.

Conclusion

By promoting the superior effectiveness of IUDs over less effective contraception, primary care providers can help to prevent unintended pregnancy (Birgisson et al., 2015; de Bocanegra et al., 2104; Finer & Zolna, 2016; Gibbs et al., 2016; Goldthwaite et al., 2015; Mosher et al., 2012; Ott & Sucato, 2014; Peipert et al, 2012; Thompson et al., 2016). Preventing unintended pregnancy can subsequently prevent the adverse health sequelae, such as maternal

death, abortion, fetal demise, stillbirth, preterm birth, low-birth weight infants, and increased risk of physical and mental health problems (Birgisson et al., 2015; Center for Disease Control [CDC], 2015; Finer & Zolna; Goldthwaite et al., 2015; Peipert et al., 2012). Not only does the prevention of unintended pregnancy hold the promise of significant health care savings, but also can optimize health outcomes and maximize quality of life for females of childbearing age. Decreasing unintended pregnancy is one of the prevention strategies that can be of the biggest benefits to individuals, their families, and all of society.

Despite the U.S. having the highest rates of unintended pregnancies of all developed countries, the high effectiveness of IUDs, and the appropriateness of IUDs in almost all populations of women of childbearing age, utilization rates at this practice site remain low. By training all providers in the insertion procedures, education and effective counseling strategies on the benefits of these methods, it is hoped that IUDs will become a more accepted form of contraception among the female patients in the office. By enabling adolescent females and women to choose the most highly efficacious forms of contraception, unintended pregnancy rates should decrease, helping these patients to achieve better health outcomes and increasing the quality of their lives, and could be considered one of the most essential tasks for primary care providers.

While the slow progress made by this DNP project is frustrating, the providers who participated are getting closer to being able to insert IUDs. One provider in this office did not participate in the project because he could already insert IUDs. If each one of the other providers can get practical training with him when he does insertions, the providers will slowly gain the ability to perform the insertions themselves. There is hope that every provider who wants to

learn will gain the experience, and that every patient who desires this form of contraception will be able to obtain it when requested.

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Appendix

APPENDIX A

STAKEHOLDER AGREEMENT

To

[Logan Pearl](#)

Aug 10 at 11:24 AM

Hi Logan,

We are pleased that you have chosen to do your capstone project with us here at St Johnsbury Community Health Center. Helping us to develop policies and procedures so that we can begin to stock and insert LARCs here on site is a very valuable service that we are anxious to provide for our patients! It's should be a great partnership for us both!

Best, Pam

Pamela Dearborn, RN

Clinical Practice Manager

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APPENDIX B

PRE-TRAINING SURVEY

In order to evaluate the effectiveness of the training, please rate the extent to which you agree with the following statements, where 1 is Strongly Disagree and 5 is Strongly Agree.

“I feel comfortable counseling women in contraceptive options in a way that enables them to choose the most effective methods”				
1	2	3	4	5
“I feel comfortable inserting Mirena IUDs”				
1	2	3	4	5
“I feel comfortable inserting ParaGard IUDs”				
1	2	3	4	5
“I feel comfortable inserting Kyleena IUDs”				
1	2	3	4	5
“I understand which women are candidates for IUDs”				
1	2	3	4	5
“I understand the indications for IUDs”				
1	2	3	4	5

Please answer the following questions:

I would like to know more about:

I am concerned about:

APPENDIX C

POST-TRAINING SURVEY

In order to evaluate the effectiveness of the training, please rate the extent to which you agree with the following statements, where 1 is Strongly Disagree and 5 is Strongly Agree.

“I feel comfortable counseling women in contraceptive options in a way that enables them to choose the most effective methods”				
1	2	3	4	5
“I feel comfortable inserting Mirena IUDs”				
1	2	3	4	5
“I feel comfortable inserting ParaGard IUDs”				
1	2	3	4	5
“I feel comfortable inserting Kyleena IUDs”				
1	2	3	4	5
“I understand which women are candidates for IUDs”				
1	2	3	4	5
“I understand the indications for IUDs”				
1	2	3	4	5

Please answer the following questions:

What was the best aspect of this presentation?

What aspect needs improvement?

Do you have any further thoughts/concerns/questions/comments?

APPENDIX D

COST-BENEFIT ANALYSIS TABLE

<u>Resource/Item</u>	<u>Cost</u>	<u>Information</u>
<i>Physical Material Costs</i>		
1 Ream Colored Paper	\$8.55	Amazon
1 Pack Pens	\$6.20	Amazon
Copying	\$1.00	Done at Practice Site
Training Kits	No cost	Provided by pharmaceutical representative
<i>Technology Costs</i>		
Laptop w/ Microsoft Office	\$1200.00	Cost not included in budget (already owned by DNP student)
<i>Travel Costs</i>		
Travel to/from Clinical Site	~\$18.00	\$3/roundtrip x 6 visits
<i>Cost of Provider Time</i>		
Provider Time	No cost	Included in salary
<i>Total Actual Costs</i>		
Total estimated cost	\$1233.75	Total estimated cost – No
Total project cost	\$1233.75-\$1200=	cost items= Actual project
Actual project cost	\$33.75	cost

APPENDIX E

SIMPLIFIED PROJECT TIMELINE

Table 4

Task	October	November	December	January	February	March	April
Identify IUD insertion videos	X						
Teaching of best-evidence counseling strategies	X						
Data collection	X	X	X	X			
Post-test and Analysis of outcomes					X	X	
Results presented to providers							X
Final project Outcomes Write-up Approval & Submission to Scholarworks							X

APPENDIX F

IRB LETTER

September 25, 2017

Logan,

Please find attached a Memorandum that informs you of our determination regarding your research activity. The activity does not meet the federal regulation definition of human subject research, therefore does not require a submission to the IRB.

Note: This determination applies only to the activities described in the submission and does not apply should any changes be made. If changes are made, please submit a new determination form to the HRPO.

If the activity involves classroom projects, it is recommended that they be conducted in accordance with the UMass honor code and all applicable UMass guidance, policies, and procedures. Classroom instructors are ultimately responsible for ensuring the ethical treatment of participants, such as ensuring participant confidentiality (if applicable) privacy, voluntary consent, and that all participants are treated with respect and dignity. Instructors who have questions about whether classroom projects might violate ethical guidelines should contact the HRPO for advice.

Sincerely,

Nancy

Nancy Swett
UMass Amherst, Human Research Protection Office
Mass Venture Center
100 Venture Way, Suite 116
Hadley, MA 01035