LARCkit: A Toolkit to Increase Prescribing of Long Acting Contraceptives to Adolescent and Young Women in a Public Health Setting

Eva M. Fried
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LARCKIT: A TOOLKIT TO INCREASE PRESCRIBING OF LONG ACTING CONTRACEPTIVES TO ADOLESCENT AND YOUNG WOMEN IN A PUBLIC HEALTH SETTING

A doctoral project submitted in partial fulfillment of the requirements for the degree of Doctorate of Nursing Practice

By

EVA M. FRIED
BA, The Ohio State University, 2000
MS, The Ohio State University, 2005

2014
Wright State University/University of Toledo
I HEREBY RECOMMEND THAT THE DISSERTATION PREPARED UNDER MY SUPERVISION BY Eva M. Fried ENTITLED LARCKit: A Toolkit to Increase Prescribing of Long Acting Contraceptives to Adolescent and Young Women in a Public Health Setting BE ACCEPTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF Doctor of Nursing Practice.

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ACKNOWLEDGEMENTS

I would like to extend an enormous thank you to Dr. Tracy Brewer, my project chair, for her encouragement and dedication to this project. Dr. Brewer devoted countless hours to helping me best orchestrate both the content and the writing itself. In honor of Dr. Brewer’s dedication, I’m committed to extending the same warmth, patience, and continuous support to my students both current and future.

I would like to thank my project committee members, Dr. Lynn Gallagher-Ford and Dr. Temeaka Gray for their assistance with this project. Dr. Gray gave the project its catchy name and helped me to stay conscious of the clinical implications. Dr. Gallagher-Ford was the first person I heard say “EBP” and that changed my life because this amorphous thing that took me back to school had a name! Dr. Gallagher-Ford also kept me true to the ultimate goals of EBP, and her line editing made me friends forever with the semi-colon.

I would like to thank Dr. Phyllis Gaspar for continually reminding me that EBP projects take place in the real world and that unexpected variables are actually inevitable and it’s OK! Thank you to Dr. Bobbe Gray, who when I tearfully wanted to leave during my first term, said bluntly “Well that would be a waste of a good mind.” I’m glad I persevered! Thank you to my parents for trusting that what I was doing was important even when it was unusual. Gratitude is also due to the investigators at The Contraceptive Choice Project whose work is significant in improving the lives of women and their
families. Admirably, the Contraceptive Choice Project team made a conscious decision to freely disseminate their tools so that many more women can benefit from them.
DEDICATION

This project is dedicated to my partner, Amy Baden, who was supportive of my furthering my education from the moment I proposed it and remained supportive throughout. Amy, I will never forget all the laundry you did, all the times you supported me as I accepted and then embraced new technology, and the hours you spent listening to me talk through nursing concepts. Completing this project has made me a better thinker, reader, writer, and clinician. I look forward to continued learning and growth together.
ABSTRACT

Fried, Eva M. DNP. Miami Valley College of Nursing and Health, Wright State University, 2014. LARCkit: A Toolkit to Increase Prescribing of Long Acting Contraceptives to Adolescent and Young Women in a Public Health Setting

In an urban, publicly funded women’s health and family planning clinic, 56% of pregnancies were reported to be unintended. The clinic director decided to address this problem by focusing on providers’ contraceptive prescribing habits; especially contraceptive prescribing for women aged 15-25. The purpose of the evidence-based practice improvement (EBPI) project was to increase provider disclosure about longer-acting reversible contraception (intrauterine and implantable methods known as “LARC” methods). The goal of the EBPI project was to increase the percentage of contraceptive prescriptions that are LARC methods for women aged 15-25 years. The clinical question guiding the EBPI project was “Among healthcare providers in a public health clinic, how does utilization of an evidence-based toolkit for providers, staff, and patients about long acting reversible contraception (LARC), compared to no intervention, affect the percentage of LARC prescriptions among all contraceptive prescriptions written for women ages 15-25 over three months?” The intervention was a toolkit utilizing components created and utilized by The Contraceptive Choice Project that had demonstrated increased LARC prescribing and utilization in a similar Mid-western city. The toolkit addressed specific prescribing barriers that were identified through an internal survey and a literature search. The Evidence-Based Practice Improvement (EBPI)
framework guided the EBPI project. This framework included rapid cycling in which the intervention was regularly evaluated and adjusted with the goal of eventually realizing an intervention that would sustain the goal of increasing LARC prescribing for women ages 15-25. The anticipated outcome was an increase in the percent of long-acting reversible contraceptives out of all contraceptives prescribed. Because the patient population was small overall, the EBPI project team decided to collect data on women of all ages, but to separately calculate the EBPI project outcomes for women ages 15-25. The outcome was an increase (from 6% to 20%) in LARC prescribing for patients’ ages 15-25, but a decrease in LARC prescribing for patients older than age 26 (from 23% to 12.5%). Changes in providers’ opinions were also measured with before and after surveys. Findings from these surveys included an increase in consistency of language to describe LARC methods, and recognition of the availability of LARC methods at the site. Concerns about difficult method insertions and the side effect of unpredictable bleeding persisted.
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I. INTRODUCTION

Despite the existence of effective contraceptive methods, half of all pregnancies in the United States are unintended and 82% of pregnancies in 15-19 year old women are unintended (Centers for Disease Control and Prevention [CDC], 2011a). In 2008, the last year for which there is published data, 55% of all pregnancies in Ohio were unintended (Kost & Henshaw, 2013). At a public health clinic serving low-income women in a medium-sized, Mid-western city, 56% of all pregnancies were reported to be unintended (Clinic Site Director, personal communication November 22, 2013). Unintended pregnancies are associated with adverse maternal outcomes and neonates born as the result of unintended pregnancies are more likely to be born prematurely and to have negative physical and mental health effects (Guttmacher, 2013). Furthermore, there is a cost burden related to unintended pregnancies. Taxpayer costs related to the medical care associated with unintended pregnancy ranges between $9.6 and $12.6 billion per year (Monea & Thomas, 2011). In addition, low-income women ages 15-25 have the highest rates of unintended pregnancy (Finer & Zolna, 2014). When unintended pregnancy occurs in adolescent women or women of lower socioeconomic status, unintended pregnancies have the potential to further compromise opportunities for education and employment.

Contraceptive Availability and Efficacy

There are existing methods of contraception that are more than 99% effective at preventing pregnancy. These include sterilization, the contraceptive implant,
intrauterine contraception (IUC or IUD) (Hatcher et al., 2008). However, at the time of unintended pregnancy as many as 45.4% of Ohio women report not using contraception (CDC, 2011a). Contraception can prevent pregnancy by altering a woman’s fertility and/or creating a barrier between sperm and egg. When any hormonal method is used correctly and the woman does not experience gastrointestinal illness or medication interactions, the rate of unintended pregnancy can be reduced to less than 0.05% per year. In literature addressing contraceptive efficacy, the annual rate of unintended pregnancy by method type is referred to as the method failure rate (Hatcher et al., 2008). Method failure is further classified into perfect use failure rate and typical use failure rate. Perfect use means that the woman or couple used the method exactly as prescribed without delayed or missed doses, gastrointestinal illness, or interaction from another medication. Typical use failure rates account for how the method is typically used in the context of a woman’s life (Hatcher, et al., 2008).

**Method Types**

Short acting reversible contraceptive methods include the oral contraceptive pill (OCP), patch, and vaginal ring. These methods require a woman to adhere to a dosing schedule on a daily, weekly, or monthly basis. An injectable method, depo medroxyprogesterone acetate (DMPA), requires an office visit for intramuscular injection every 11-15 weeks, and can take longer to reverse than other contraceptive methods (CDC, 2010). Long-acting reversible contraceptive methods (LARC), (intrauterine methods and the single rod implant) on the other hand, require rare action on the part of the user and their contraceptive effect ends with removal of the device. At the national level, the OCP is the most commonly used contraceptive with 35% of female
contraceptive users reporting this as their primary contraceptive method (The United States Department of Health and Human Services [DHHS], 2011) (See Figure 1).

Unfortunately, OCPs are not the most effective method of preventing pregnancy.

![Figure 1. Percent of Female Contraceptive Use in the U.S. by Method Type. Percentages per United States Department of Health and Human Services, 2011.](image)

**Method Efficacy**

As displayed in Table 1, LARC methods have superior efficacy with typical use, are more likely to be continued at one year, and can be cost effective when the initial cost is divided by years of use and simply by preventing the costs associated with unintended pregnancy. Because LARC methods eliminate user error as a component of efficacy, the three LARC methods discussed here all have typical use efficacy rates of greater than 99% whereas DMPA has a typical use efficacy rate of 94%, the OCP, the patch, and the ring have rates of 92%, and the male condom has a rate of 85% (see Table 1) (CDC, 2010; Hatcher, et al. 2008). The healthcare community supports the use of LARC as a
Table 1

**Contraceptive Method Comparison**

<table>
<thead>
<tr>
<th>Type</th>
<th>Risks</th>
<th>Benefits</th>
<th>Perfect use failure rate</th>
<th>Typical use failure rate</th>
<th>Percent of women continuing method at 1 year</th>
<th>Cost</th>
</tr>
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<tbody>
<tr>
<td>Pill/patch/ring</td>
<td>Cardiovascular complications</td>
<td>Decreases dysmenorrhea, decreased reproductive cancers</td>
<td>0.3</td>
<td>9</td>
<td>67</td>
<td>$15-$80 per month</td>
</tr>
<tr>
<td>DMPA</td>
<td>Depression, weight gain</td>
<td>Decreased menstrual blood loss</td>
<td>0.2</td>
<td>6</td>
<td>56</td>
<td>$35-$100 per 3 months</td>
</tr>
<tr>
<td>Copper IUD</td>
<td>Infection, uterine perforation</td>
<td>Efficacious without hormones</td>
<td>0.6</td>
<td>0.8</td>
<td>78</td>
<td>$500-$1000 per 10+ years</td>
</tr>
<tr>
<td>Levenogestrel IUS</td>
<td>Infection, uterine perforation</td>
<td>Decreases menstrual blood loss</td>
<td>0.2</td>
<td>0.2</td>
<td>80</td>
<td>$500-$1000 per 5+ years</td>
</tr>
<tr>
<td>Single rod implant</td>
<td>Depression, Unscheduled bleeding</td>
<td>Decreased dysmenorrhea, decreased menstrual blood loss</td>
<td>0.05</td>
<td>0.05</td>
<td>84</td>
<td>$400-$800 per 3 years</td>
</tr>
<tr>
<td>No method</td>
<td>Higher risk of unintended pregnancy</td>
<td></td>
<td>85</td>
<td>85</td>
<td>Data not available</td>
<td>Zero initial cost</td>
</tr>
</tbody>
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(Hatcher, et al., 2008; Planned Parenthood, 2014)
first choice method of contraception as evidenced by statements from the American College of Obstetricians and Gynecologists (ACOG), The World Health Organization (WHO), and The Centers for Disease Control and Prevention (CDC) (ACOG, 2011; CDC, 2010). Limiting the availability of some methods of contraception is discouraged. As a national benchmark, Healthy People 2020 initiative 3.1 has established the goal that all Title X funded clinics provide a full range of contraceptive methods approved by the Food and Drug Administration (FDA) (DHHS, 2012). Title X clinics are federally funded programs dedicated to providing family planning services to all Americans.

**Cost**

When viewed solely from a cost perspective, family-planning services save four dollars in pregnancy related care for every dollar spent on contraception (DHHS, 2012). Cost to the consumer is an evolving issue as the Affordable Care Act (ACA) purports to cover all prescription contraceptive methods at no cost to the consumer (DHHS, 2014a). The reality of implementing this coverage, however, remains unclear. Further, consideration of cost needs to include long-term cost to the user and to society. The cost figures presented here do not address the long-term financial sequelae for individuals and society that result from lost wages, deferred education, and the perpetuation of poverty that can result from unintended pregnancy.

**Background specific to the study site**

To better understand the baseline prescribing patterns at the Midwestern urban public health clinic where the EBPI project was implemented, all contraceptive prescriptions given for women of all ages for the month of October 2013 (the most recent available baseline data at the time) were reviewed and percentages of types of prescriptions written were calculated. The data
revealed that OCPs were the most common contraceptive prescribed with 56% of patients using the OCP method (See Fig. 2 and 3). The clinic exceeded the national average for LARC method prescribing with LARC methods composing of 23% of all contraceptive prescriptions. However, women aged 15-25 were only prescribed LARC methods 6% of the time. According to the clinic director these numbers were consistent with overall contraceptive prescribing trends in the clinic for the year prior to data analysis (Clinic Site Director, personal communication, November 21, 2013). While it is laudable that this clinic’s overall LARC prescribing exceeds the national average, there remains significant room for improvement when only 6% of the clinic’s contraceptive patients aged 15-25 are using the most efficacious methods and the site maintains an unintended pregnancy rate of 56%.

Survey of Similar Sites

The clinic site director wanted to address the 56% unintended pregnancy rate at the clinic. Because LARC methods have demonstrated to be the most effective methods of contraception (Hatcher et al., 2008) the site director decided to attempt to lower the unintended pregnancy rate by working first to increase the rate of LARC prescribing to patients of the clinic. To this end, the site director partnered with the director of a community organization called Council on Healthy Mothers and Babies (COHMAB) to discuss collaboration on a project to reduce the rate of unintended pregnancy in the clinic site that may then be generalizable to other public health settings in the community (Clinic Site Director, personal communication, January 13, 2013). The clinic site director and COHMAB director decided to conduct an assessment of barriers to LARC prescribing in similar sites by administering a survey to groups of patients and providers.
Figure 2. *October 2013 Contraceptive Prescriptions at EBPI project site for patients age 15-25 years.* LARC-long acting reversible contraceptive

Figure 3. *October 2013 Contraceptive Prescriptions at EBPI site for patients of all ages.* LARC-long acting reversible contraceptive
The two site directors asked a doctor of nursing practice (DNP) student, who became the EBPI project leader, to assist them in this process. Therefore, a team was formed for conducting an internal quality improvement project that consisted of the site director, the COHMAB director, and the DNP student. First the team developed two surveys, one for healthcare providers and one for patients. The questions in each survey were not validated; they came from the expert opinion and practical experience of members of the team (See Appendix A). The goal of conducting the surveys were to determine the accuracy of knowledge about LARC methods among providers and patients of public health facilities in the area.

The COHMAB director posted provider surveys in an online anonymous format to provider members of COHMAB. Notably, providers of the site where the doctoral EBPI project eventually took place did not participate in this initial survey. COHMAB member providers are those that provide women’s healthcare in local public health settings. Fourteen providers were invited to participate and 5 surveys were completed. Patient surveys were administered by paper and pencil to members of a group for new mothers that were run by the COHMAB director. Four surveys were completed and returned. Data collection took place in the Spring of 2013. It is not known whether the four women who participated in the new mothers’ group were ever patients of the site where the EBPI project eventually took place. Overall only four patient responses and five provider responses were collected. Responses were then compiled and presented to the COHMAB board by the COHMAB director and the DNP student (See Appendix B).

Findings from the Survey of Similar Sites
Although the sample size was small, the themes that emerged were informative. Patients thought of condoms as their primary contraceptive method and looked to their providers for contraceptive advice. Even more revealing were the provider responses to the question “Are there certain patients for whom you are more or less likely to discuss long acting reversible methods?” Answers to this question revealed lack of knowledge about the appropriateness of IUD use among young and/or nulliparous women, bleeding expectations with IUDs, and biases against patients’ follow up care and questions associated with the use of LARC methods. After these findings were presented to the COHMAB board by the COHMAB director and the DNP student, attendees at the COHMAB meeting noted that women looked to their providers for guidance regarding contraceptive method choice and that providers had lingering misperceptions and biases about LARCs in general and especially about never-pregnant adolescents as candidates for LARC methods. After analysis of these limited findings, ultimately, the team charged the current EBPI project leader (the DNP student) with the task of conducting a review of literature to identify methods to improving the rate of LARC prescribing.

Guiding Framework

A framework was selected in order to guide literature appraisal and implementation for a change in practice. The guiding framework was the Evidence-Based Practice Improvement (EBPI) model (Levin, et al., 2010). This framework was chosen because it incorporates both evidence-based practice and quality improvement, or program improvement methods. Evidence-based practice (EBP) integrates research evidence with clinical expertise and patient preference (Melynk and Fineout-Overholt, 2011). According to the authors of the framework, EBP “provides a systematic
framework for defining and focusing a clinical question” (Levin, et al., 2010, p. 117). Quality Improvement (QI) is an ongoing process that uses rapid cycles to continually appraise, alter, and effectively sustain an improvement (DHHS, 2014b). The EBPI model was developed as a way to incorporate the systematic evidence gathering and appraisal of evidence with a practical approach to application and sustainability of an effort that is afforded by QI (Levin, et al., 2010).

Multiple QI models for rapid small tests of change were identified. The implementation model incorporated in the EBPI framework is “Plan, do, study, act” or “PDSA”. Plan, do, study, act is a formative evaluation process that includes frequent feedback from stakeholders and the use of “small tests of change” before employing a change on a large scale (Levin, et al., 2010, p. 123). This framework was an excellent fit for the EBPI project because literature on the topic was collected and appraised using evidence-based practice tools (Melnyk & Fineout-Overholt, 2011) and the information obtained was combined with internal findings from geographically similar sites to create a site-specific EBPI project. The PDSA cycles were an ideal component of the framework because they allowed the site providers and staff to experiment with modifying components of the intervention to find the best fit for the specific site.

Step one of the EBPI model is describing the clinical problem. The clinical problem the site chose to address was the need to reduce the current rate of unintended pregnancy (56%) reported by patients at the clinic by increasing prescribing of LARC methods.

**PICOT Question**

Initially, the clinical problem was formatted into a searchable question using the PICOT format. PICOT (Patient population, Intervention, Comparison intervention,
Outcome, Time) is a format for asking clinical questions that can help to focus a literature search (Cochrane Collaboration, 2006). The question that guided the literature search was “Among healthcare providers in a public health clinic, how does an intervention to increase provider disclosure of long acting reversible contraception (LARC), compared to no intervention, affect the percentage of LARC prescriptions among all contraceptive prescriptions written for women ages 15-25 over three months?” Based on the literature review a subsequent PICOT question was developed.

**Purpose and Goals**

The purpose of the EBPI project was to increase prescriber disclosure of LARC methods as the most effective method of contraception. The goal of the EBPI project was to increase the percentage of contraceptive prescriptions that were LARC methods. This was an evidence-based practice change project. An evidence-based practice process was used in which evidence was formally gathered, appraised, and synthesized to guide practice improvement.
II. EVIDENCE

Search Strategies and Results

Initial database searches using the terms “advanced practice nurse,” and “adolescent” along with terminology about contraception produced very limited results. Therefore, in order to gather as much information as possible the term “Long acting contraceptive*” was entered in the Cochrane, CINAHL, and PubMed databases to capture the key phrases “long acting contraceptive” and “long acting contraception”. Using this term over 300 articles were identified. Thirty-six of those were deemed relevant from the abstract and read in detail. Of the thirty-six, five were formally evaluated and kept in the evidence synthesis (See Table 2). Additional hand gathering of articles was done after reviewing articles referenced in the articles found in the key word searches. The search terms were saved in PubMed and periodic updates from PubMed provided additional articles that were utilized in the evaluation and synthesis of the most relevant literature. These more recent articles did not suggest any changes beyond what was gathered initially, they simply reinforced the need to change provider mindsets so that LARC is seen as the best method of contraception for most women.

Inclusion and Exclusion Criteria

Initially the search was limited to articles published in the last 10 years, with particular attention to articles published in the last five to six years. While multiple articles from international sites were reviewed, ultimately, articles focusing on the United States population were preferred as these focused on contraceptive methods specifically
Available in the United States. In summary, recent articles with larger sample sizes, examining provider counseling in relation to contraceptive devices available in the United States were kept in the final synthesis. Articles examining the cost effectiveness of LARC methods were also retained. In addition, two sets of guidelines were reviewed and included in the collection of external evidence (see Table 3).

**Article Appraisal**

Articles were appraised using a technique called “Rapid critical appraisal” as defined by Melnyk and Fineout-Overholt (2011). This method includes evaluating each article for level of evidence (described below), how the study was conducted (including design, method, and possible confounding variables), and usefulness of study findings to practice. Because the question addressed here was an intervention question, the evidence was ranked (or leveled) as follows: Level 1; systematic reviews or meta-analyses of randomized controlled trials, Level 2; randomized controlled trials; Level 3 nonrandomized controlled trials; Level 4 cohort or case-control studies; Level 5 Meta-syntheses of qualitative or descriptive studies; Level 6 qualitative or descriptive single
Table 3

*Characteristics of Studies Included in Practice Recommendation*

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<th>Citation</th>
<th>Rationale for Inclusion</th>
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<td>Tyler, et. al. (2012). Health care provider attitudes and practices related to intrauterine devices for nulliparous women</td>
<td>Found healthcare provider attitudes to be a barrier to LARC provision</td>
</tr>
<tr>
<td>Deans, E. &amp; Grimes, D. (2009). Intrauterine devices for adolescents: A systematic review</td>
<td>Only broad systematic review located, addressed provider counseling as a variable</td>
</tr>
<tr>
<td>Kavanaugh, (2013). Meeting the contraceptive needs of teens and young adults: Youth friendly and long-acting reversible contraceptive services in U.S. family planning facilities.</td>
<td>Teen and young adult population, Large sample size Provider counseling as a variable</td>
</tr>
<tr>
<td>Lewis, (2013). Intrauterine contraception: Impact of provider training on participant knowledge and provision.</td>
<td>Recent article, Clinician training as variable</td>
</tr>
<tr>
<td>ACOG (2011) Guideline</td>
<td>Addresses LARC candidate selection</td>
</tr>
<tr>
<td>USMEC (2010) Guideline</td>
<td>Addresses LARC candidate selection</td>
</tr>
</tbody>
</table>

Clinical Practice Guidelines

Two sets of guidelines were reviewed: The American College of Obstetricians and Gynecologists (ACOG) practice bulletin on LARC (2011) and the U.S. Medical Eligibility for Contraceptive Use (USMEC) (CDC, 2010). While neither set of guidelines gave guidance specifically on provider disclosure, they did address the necessity of a shift...
in provider understanding about LARC usage and LARC candidate selection. Both documents were reviewed using the rapid critical appraisal tool for guidelines (Melnyk & Fineout-Overholt, 2011) (See Appendix C). The Committee on Practice Bulletins-Gynecology developed the ACOG guideline with assistance from two LARC experts. Committee membership is not explicitly stated, so it is impossible to determine conflicts of interest, but it is plausible that the committee was composed of ACOG members who are all physicians and is, therefore, not an interdisciplinary group. The funding source was also not specifically disclosed, but may be from membership dues. While the recommendations made reference to numerous previous studies, no systematic method of appraising the quality of the relevant literature was reported. It was not stated whether the guideline had been subjected to peer review. The guideline recommendations were clinically relevant and feasible, may lead to an increase in LARC prescribing and provision, and outcomes could be measured by measuring changes in LARC prescribing.

The USMEC was adapted from the World Health Organization (WHO) Medical Eligibility for Contraceptive Use (4th ed.) by the CDC’s Division of Reproductive Health. The panel that adapted the WHO guidelines for specific U.S. use included “Eight key partners and U.S. family planning experts” (CDC, 2010, p. 2). Only minor adaptations were made to account for issues such as availability of certain methods in the U.S. The panel conducted a systematic literature review for each recommendation considered for adaptation using the United States Preventive Services Taskforce (USPSTF) system to grade the evidence (USPSTF, 2014). Next the panel analyzed each systematic review. After this, a larger meeting of 31 contraceptive experts from different specialties convened to comment on the evidence presented. The guideline did not make explicit
recommendations, but graded each contraceptive method on a safety scale for a number of demographic and health criteria. The recommendations are clinically relevant and assist in making direct patient care decisions about contraceptive eligibility. The recommendations are practical and economically feasible. The recommendations could trigger a variation from standard care particularly with regard to increased provision of LARC methods due to a better understanding of patient eligibility for these methods. Outcomes of this change in practice could then be measured. The ultimate recommendation was to consider LARC as first choice methods for all women unless an individual woman is deemed medically ineligible for a LARC method.

Findings from the Literature Review

Nationally, only 3.6% of adolescents use IUDs (which are a LARC method) (DHHS, 2011). However, in one large study when education was provided and initial cost was removed as a barrier, 60% of adolescent women chose LARC methods (Mestad, et al., 2011). Further, Tyler and colleagues (2012) found that barriers to LARC provision included; misconceptions about LARC associated with being a family medicine specialist, not being trained in IUD insertion, and non-availability of IUDs on-site. Other authors found that provider training was critical to increasing LARC provision and that there is a positive association between rate of LARC provision and provider training in “youth-friendly” contraceptive services (Deans & Grimes, 2009; Kavanaugh, et al., 2013; Lewis, Darney, & Theil de Bocanegra, 2013; Mested, et al., 2011; Tyler et. al., 2012). (See Table 4 for evaluation of the evidence retrieved from the literature search). The evidence was assigned a level and rated for quality and usefulness to practice.
### Table 4

**Evaluation of Literature**

<table>
<thead>
<tr>
<th>Citation, funding, and level of evidence</th>
<th>Design/ Method Conceptual Framework</th>
<th>Sample/Setting</th>
<th>Major Variables</th>
<th>Measurement</th>
<th>Data Analysis</th>
<th>Findings/Outcomes</th>
<th>Quality of Evidence: Critical Worth to Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mestad, et al., (2011). Acceptance of long-acting reversible contraceptive methods by adolescent participants in the contraceptive CHOICE project.</td>
<td>Prospective, observational study evaluating association between age and type of LARC method chosen</td>
<td>5086 women convenience sample who desired reversible contraception for at least one year.</td>
<td>IV 1: age, DV: choice of contraceptive method</td>
<td>Questionnaire</td>
<td>When controlling for all covariates the relative risk of the younger adolescents choosing the implant remained statistically significant.</td>
<td>When education is provided and initial cost is removed as a barrier, a majority of adolescent women choose LARC methods. Ages 14-17 are more likely to choose the implant while ages 18-20 are more likely to choose an IUD</td>
<td>Strengths: sample size, Limitations: convenience sample, Worth: significant increase in percent of women choosing LARC compared to national average.</td>
</tr>
</tbody>
</table>

Funding: Multiple awards and foundation grants

LOE: IV
<table>
<thead>
<tr>
<th>Citation, funding, and level of evidence</th>
<th>Design/Method Conceptual Framework</th>
<th>Sample/Setting</th>
<th>Major Variables</th>
<th>Measurement</th>
<th>Data Analysis</th>
<th>Findings/Outcomes</th>
<th>Quality of Evidence: Critical Worth to Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tyler, et. al (2012). Health care provider attitudes and practices related to intrauterine devices for nulliparous women</td>
<td>Design: survey</td>
<td>Random sample 4000 office based and Title X providers. Response rates were 44.9%-77.5% dependent on specialty (primary care or women’s health specialty) responses were not sorted by educational background</td>
<td>DV 1: attitude toward safety of IUDs for nulliparous women DV 2: provision of IUD to nulliparous women</td>
<td>Questionnaire</td>
<td>Used multivariable logistic regression to estimate adjusted odds ratios and confidence intervals of associations between patient, healthcare provider, and clinical variables and provider misconceptions about IUD safety and provision in nulliparous women</td>
<td>Women’s access to appropriate and effective contraception should not be limited by provider misconceptions and lack of training. Office–based clinicians were more likely than Title X providers to view both IUDs as unsafe for nulliparous women, Office based clinicians were also less likely to provide the copper IUD to this group. There was no difference in provision of levonorgestrel IUD. OB-GYN specialists as well as providers with IUD insertion training and on-site device availability were also more likely to have accurate knowledge and improved device provision</td>
<td>Strengths: sample size, consistent results Limitation: better response rate from Title X clinicians, not certain how respondents and non-respondents differed, unable to account for other confounding variables such as insurance coverage and other reasons for patient preferences. Worth: Misconceptions associated with being a family medicine specialist, not being trained in IUD insertion, and non-availability of IUDs on-site.</td>
</tr>
<tr>
<td>Citation, funding, and level of evidence</td>
<td>Design/Method Conceptual Framework</td>
<td>Sample/Setting</td>
<td>Major Variables</td>
<td>Measurement</td>
<td>Data Analysis</td>
<td>Findings/Outcomes</td>
<td>Quality of Evidence: Critical Worth to Practice</td>
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<tr>
<td>Deans, E. &amp; Grimes, D. (2009). Intrauterine devices for adolescents: A systematic review</td>
<td>6 cohort studies and 7 case series included in systematic review</td>
<td>Systematic review</td>
<td>DV 1: continuation rate DV 2: pregnancy rate</td>
<td>Systematic review</td>
<td>Multiple methods due to systematic review</td>
<td>Adolescent compliance is better with long-acting methods, Insertion is generally not problematic, concern for association between IUD provision and tubal infertility is unwarranted Continuation rate with IUD is similar to or better than with oral contraceptives, pregnancy rate between methods is similar at 2 years. Expulsion may be more likely in younger women.</td>
<td>Strengths: systematic literature search Limitations: none of the studies included used IUDs currently available in the United States, differences in original studies precluded a meta-analysis of the data, selection bias in original studies Worth to practice: Adolescent compliance is better with LARC, many concerns about side effects have been allayed by recent literature</td>
</tr>
<tr>
<td>Funding: not disclosed</td>
<td>no conceptual framework</td>
<td>DV 1: continuation rate</td>
<td>Systematic review</td>
<td>Multiple methods due to systematic review</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LOE: IV</td>
<td></td>
<td>DV 2: pregnancy rate</td>
<td></td>
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</tbody>
</table>

19
<table>
<thead>
<tr>
<th>Citation, funding, and level of evidence</th>
<th>Design/ Method Conceptual Framework</th>
<th>Sample/Setting</th>
<th>Major Variables</th>
<th>Measurement</th>
<th>Data Analysis</th>
<th>Findings/Outcomes</th>
<th>Quality of Evidence: Critical Worth to Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kavanaugh, M.L., Jerman, J., Ethier, K. &amp; Moskosky, S. (2013). Meeting the contraceptive needs of teens and young adults: Youth friendly and long-acting reversible contraceptive services in U.S. family planning facilities.</td>
<td>Design Conceptual framework: None</td>
<td>1,196 Publicly funded facilities in the U.S.</td>
<td>IV 2 Staff training in adolescent-specific contraceptive counseling</td>
<td>Questionnaire sent to agency directors or their delegated staff member</td>
<td>Chi-square analysis</td>
<td>LARC methods discussed less frequently with teens and young adults than other methods</td>
<td>Strengths: Sample size Limitations: Self-report by clinic directors Findings may not be generalizable to privately funded sites Worth: provider training is critical to increasing LARC provision. There is a positive association between rate of LARC provision and provider training in “youth-friendly” contraceptive services</td>
</tr>
<tr>
<td>Citation, funding, and level of evidence</td>
<td>Design/ Method Conceptual Framework</td>
<td>Sample/Setting</td>
<td>Major Variables</td>
<td>Measurement</td>
<td>Data Analysis</td>
<td>Findings/Outcomes</td>
<td>Quality of Evidence: Critical Worth to Practice</td>
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<tr>
<td>Lewis, C., Darney, P., &amp; Theil de Bocanegra, H. (2013). Intrauterine contraception: Impact of provider training on participant knowledge and provision. Funding: State of California, Department of Health Care Services, Office of Family Planning</td>
<td>Matched comparison</td>
<td>249 clinicians 186 unique sites Clinicians (physicians and “advanced practice clinicians”) providing contraceptive care in the state of California who attended an optional free training about intrauterine contraception</td>
<td>DV: provision of intrauterine contraception IV 1: training</td>
<td>Changes in provider knowledge and attitudes using Pre and post training surveys</td>
<td>Claims match analyses Paired t-tests Repeated measures analysis of variance</td>
<td>Provision of intrauterine contraception increased overall at sites that sent clinicians to training.</td>
<td>Worth to practice: Skills-based training can be an important strategy for increased provision of IC</td>
</tr>
<tr>
<td>CDC - Centers for Disease Control and Prevention, IC - intrauterine contraception, LARC - long-acting contraceptive, LOE - level of evidence, MIDAS - Multinational Integrated Data Analysis System, SARC - short-acting contraceptive, UP - unintended pregnancy, WH - women’s health</td>
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</table>
**Evidence Synthesis**

The evidence for the intervention used in this EBPI project was comprised of cohort studies and expert opinion. Expert opinion generalized the scientific understanding of the appropriateness of LARC methods as first line contraception to adolescent and nulliparous women based on understanding of reproductive anatomy and background literature establishing the safety and efficacy of LARC methods (Kavenaugh, et al., 2013) (See Table 5). Findings from published literature suggest that barriers to increasing LARC prescribing exist. Barriers include the initial higher cost, patient misconceptions, and provider misconceptions, which can inhibit disclosure of all methods (Cope, Yano, Lee, & Washington, 2006; Landry, Wei, & Frost, 2008; Lindberg, Frost, Sten, & Dailard, 2006; Mested et al., 2011). All of the studies included found that provider education might improve the frequency of LARC prescribing. Two studies demonstrated that removal of cost as a barrier could improve the frequency of LARC prescribing, and two studies found that consistency in message delivery to patients from providers and staff could increase patient utilization of LARC.

**Recommendation for Practice Change**

The purpose of the EBPI project was to increase provider disclosure of LARC methods. The recommendation for practice based on the literature review was to remove provider barriers to prescribing LARC methods. Because provider barriers include; lack of knowledge about LARC, inadequate patient teaching tools, inconsistency in LARC messaging among providers and staff, and issues with reimbursement for LARC methods, all of these were addressed in the practice change (ACOG, 2011; CDC, 2010; Deans & Grimes, 2009; Mested, et al., 2011; Tyler, et al., 2012). The Contraceptive
Table 5

*Synthesis Table of Findings and Level of Evidence*

<table>
<thead>
<tr>
<th>Finding</th>
<th>Mested</th>
<th>Tyler</th>
<th>Deans</th>
<th>Kavanaugh</th>
<th>Lewis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provider education may improve frequency of LARC prescribing</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Patient education is important to increasing LARC provision</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Removing cost barriers can increase LARC provision</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Consistency in message delivery among staff and providers can increase LARC provision</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Use of a toolkit for implementation</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level of Evidence</td>
<td>IV</td>
<td>IV</td>
<td>IV</td>
<td>VI</td>
<td>IV</td>
</tr>
</tbody>
</table>
Choice Project in Saint Louis, Missouri, was found to have developed a toolkit to address these concerns (Mested, et al., 2011). The Contraceptive Choice Project demonstrated a significant increase in LARC utilization particularly among adolescent and young adult women when providers were trained in LARC eligibility, provided consistency in LARC message delivery, and all contraceptive methods were provided at no cost (Mested, et al., 2011). Contraceptive Choice Project staff members were consulted regarding implementing components of their project, and were forthright about limitations in previous stages of implementation as well as their plans for future implementation. They were supportive of the utilization of their program components in the current EBPI project and helped guide selection of program tools to implement in the current EBPI project setting (See Tables 6 and 7) (H. Broughton & S. Selbert, personal communication, February 6, 2013).

**Toolkit Approach**

Because multiple barriers to LARC utilization were identified both in findings from the literature search and internally at the EBPI project site, a toolkit approach was selected to address many of these barriers at once. According to Butler (2007, p. 93) “A toolkit is a set of materials-written documents, PowerPoint presentations, and other resources- that support a particular practice or program,” and can be utilized to assemble the best evidence on a topic into a comprehensive intervention. The Institute for Healthcare Improvement (IHI) (2012) and The Agency for Healthcare Research and Quality (AHRQ) (2011) have suggested the use of toolkits to address multiple barriers to a practice change. Both organizations have authored numerous toolkits that translate evidence into tools, trainings, and checklists that can be implemented in health care
settings. Notably, The Contraceptive Choice Project (described above) used a toolkit approach to provide structured contraceptive counseling and to remove cost barriers to LARC (Mested, et al., 2011). To account for these factors a subsequent PICOT question was created to guide the EBPI project: “Among healthcare providers in a public health clinic, how does utilization of an evidence-based toolkit for providers, staff, and patients about long acting reversible contraception (LARC), compared to no intervention, affect the percentage of LARC prescriptions among all contraceptive prescriptions written for women ages 15-25 over three months?”
III. IMPLEMENTATION

Setting and Population

The EBPI project took place in an urban, publicly funded women’s health and family planning clinic that was part of the city health department in a medium-sized Midwestern city. The population of the county served by the site was just over 1 million people, 51.3% of whom are female. In addition the Caucasian, African American, and Latino populations, there were refugee groups from Africa, the Middle East, and Asia (Central Ohio Hospital Council, 2013). At the EBPI project site 37% of clients were of Hispanic origin and 62% of clients spoke English as their first language. Language interpretation was available via telephone, video conferencing, and face to face. The population of focus for the clinic was women at 100% or below of the federal poverty level. Patients who were uninsured or underinsured were seen for a donation or a fee based on a sliding scale. The facility averages 130 patient encounters per month (Clinic Site Director, personal communication March 12, 2014).

Evidence-Based Practice Improvement Project Approval

Agency permission was obtained from the public health clinic to conduct the EBPI project. Human subject’s project approval was obtained from the institutional review board at Wright State University (See Appendix D).
Toolkit Components

LARC methods included in the toolkit were the copper IUD (brand name Paragard), a progestin-containing IUD (brand name Mirena), and the progestin contraceptive implant (brand name Nexplanon). A newer progestin-containing IUD (brand name Skyla) was not included due to inconsistent product availability and outcomes data at the time. The three LARC methods included in this EBPI project had demonstrated increased efficacy over other contraceptive methods in a previous study (Kavanaugh, et. al, 2013). The increased efficacy was attributed to reduction in both user error and user discontinuation. Based on the success of The Contraceptive Choice Project several of their toolkit components were included in this EBPI project. These included an initial training (a 1.5 hour PowerPoint presentation and question/answer period) for the clinic providers (three advanced practice nurses and one physician) as well as nurses (one registered nurse (RN) and 2 licensed practical nurses (LPN) and staff (administrative staff and medical assistants) (See Appendix E). Other toolkit components included from The Contraceptive Choice Project included handouts for patients in both English and Spanish, “scripting” to provide consistent message delivery among providers, and resources to ensure adequate clinic reimbursement for contraceptive prescribing (See Tables 6 and 7).

Barriers and Facilitators

An anticipated facilitator was support from the site director and the site’s medical director. To maintain this support, the EBPI project leader provided clear timelines and reports on the EBPI project. A second anticipated facilitator was that the clinic maintained on-site availability of LARC methods due to receiving Title X funding (as
described previously). Another anticipated facilitator was support from one of the
providers, a family nurse practitioner at the clinic who was motivated by her own

Table 6

*Necessary Toolkit Components*

<table>
<thead>
<tr>
<th>Product/Document</th>
<th>Critical Components</th>
<th>Literature Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient teaching tools (Method Fact Sheets)</td>
<td>Address specific provider concerns about amount of time necessary to educate patients about insertion and expected side-effects. Literacy level # of printed copies and availability Available in both English and Spanish Some graphics employed</td>
<td>Mested, et al. (2011)</td>
</tr>
<tr>
<td>Provider and staff education (Initial training and Provider resource notebook/LARC provision guide)</td>
<td>Initial provider feedback Time to present to providers, plan for follow up Ongoing provider feedback and alterations as part of PDSA cycling</td>
<td>Deans &amp; Grimes (2009), Kavanaugh et al., (2013), Lewis et al., (2013), Mested, et al. (2011), Tyler et al., (2012)</td>
</tr>
<tr>
<td>Scripting to ensure consistency in LARC message delivery</td>
<td>Understandable for all clinic staff Posted in all appropriate places (front desk, billing, medical assistant office, provider office)</td>
<td>Kavanaugh et al., (2013), Mested, et al. (2011)</td>
</tr>
<tr>
<td>Billing code sheet</td>
<td>Critical to implementation, currently available at practice Readily available for billing staff and providers</td>
<td>Kavanaugh et al., (2013), Mested, et al. (2011)</td>
</tr>
<tr>
<td>Document(s)</td>
<td>Source</td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>----------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Medical eligibility criteria for contraception</td>
<td>Centers for Disease Control and Prevention</td>
<td></td>
</tr>
<tr>
<td>Choice project Findings</td>
<td>The Contraceptive Choice Project</td>
<td></td>
</tr>
<tr>
<td>Scripted response to IUD commentary in the media</td>
<td>The Contraceptive Choice Project</td>
<td></td>
</tr>
<tr>
<td>Contraceptive counseling scripts in English and Spanish</td>
<td>The Contraceptive Choice Project</td>
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<tr>
<td>Contraceptive method fact sheets</td>
<td>The Contraceptive Choice Project</td>
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<tr>
<td>Contraceptive method frequently asked questions</td>
<td>The Contraceptive Choice Project</td>
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<tr>
<td>Helpful hints for LARC insertions and removals</td>
<td>The Contraceptive Choice Project</td>
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<tr>
<td>LARC insertion timing algorithms</td>
<td>The Contraceptive Choice Project</td>
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<tr>
<td>Menu of contraceptive options</td>
<td>The Contraceptive Choice Project</td>
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<tr>
<td>Method bridging protocol</td>
<td>The Contraceptive Choice Project</td>
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<tr>
<td>Signs of clinical urgency</td>
<td>The Contraceptive Choice Project</td>
<td></td>
</tr>
<tr>
<td>U.S. Selected practice recommendations for contraceptive use 2013 updates</td>
<td>Centers for Disease Control and Prevention</td>
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<tr>
<td>LARC Quick Coding Guide</td>
<td>American College of Obstetricians and Gynecologists</td>
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</table>

understanding of the current literature and her education to provide LARC methods as first line contraception. This provider was educated more recently than the other two providers and therefore may have been more aware of recent LARC recommendations.
and more likely to prescribe LARC methods on a more frequent basis. Table 8 shows EBPI project facilitators and how each was addressed during implementation. The use of rapid PDSA cycling was a facilitator as small tests of change offered the potential for frequent modification of the toolkit based on staff and provider feedback.

Table 8

<table>
<thead>
<tr>
<th>Facilitators</th>
<th>How addressed during implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agency buy-in (support from site director and medical director) Both presented the EBPI project at related meetings within the agency and invited the EBPI project leader to speak about the EBPI project whenever appropriate.</td>
<td>Voiced appreciation for teamwork and provided clear timelines and progress reports.</td>
</tr>
<tr>
<td>Site director also looked for connections to other agency programs such as providing contraception to patient’s of the tuberculosis clinic.</td>
<td>Prioritized being present at different agency meetings (birth outcomes, reducing infant mortality) to educate about the EBPI project.</td>
</tr>
<tr>
<td>Title X funding Healthy People 2020 has goal of “full availability” of all FDA approved contraceptive options at Title X funded sites so the agency has a broader motive to meet the goals of this EBPI project.</td>
<td>Remained current and knowledgeable about this larger federal mandate and addressed it at agency meetings.</td>
</tr>
<tr>
<td>Grant in place with similar goal, which further motivates site director and may influence provider participation.</td>
<td>Keep meticulous records for site director’s use.</td>
</tr>
</tbody>
</table>

Anticipated barriers included variation in ethnicity and primary language (some patients did not speak English) among patients at the site (See Table 9). To address the Spanish language barrier, the clinic’s two full-time Spanish interpreters were involved in the toolkit training. Other languages were anticipated to remain barriers to full
implementation of the toolkit components. Another anticipated barrier was the potential resistance of one provider at the site who expressed a bias against the follow up necessary after prescribing LARC methods. In response to this provider’s initial concerns, teaching tools were included in the toolkit that addressed common side effects and when to call the clinic. To continue to engage this provider the EBPI project leader regularly solicited her feedback and acted on it when appropriate.

Unanticipated barriers included lack of use of the toolkit by providers (other than participation in the initial training) and lack of provider “buy-in” about the necessity for change. Another unanticipated barrier was the absence of clinical and administrative leadership from the site director and the medical director. Both of these individuals had the opportunity to promote the EBPI project and to set goals and require adherence from the providers. All three providers involved repeatedly reported that they already promoted LARC methods prior to the EBPI project and did not need to change any behaviors. These providers’ pre-EBPI project prescribing numbers suggest that they may have already been promoting LARC, but still had room for improvement. While the agency’s benchmarks and grant funding may have provided the site director with motivation to increase LARC prescribing, it was not evident that she communicated this to the providers. Instead, her advice to the EBPI project leader was to increase her physical presence at the site. In effort to address this void in formal leadership, the project leader did repeatedly increase her presence at the site.
Table 9

<table>
<thead>
<tr>
<th>Barriers</th>
<th>How Barriers were addressed during implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of use of toolkit</td>
<td>Frequent verbal conversations about tools and posted some tools in prominent locations</td>
</tr>
<tr>
<td>Lack of “buy-in” about necessity</td>
<td>Regular modifications to plan and feedback about the EBPI project for change from participants</td>
</tr>
<tr>
<td>Lack of formal leadership by on site</td>
<td>EBPI project leader greater physical presence Site director and Medical director</td>
</tr>
</tbody>
</table>

Language did not turn out to be a barrier because the medical director chose to limit LARC communication to providers and registered nurses. Language interpretation was available during these encounters. Cultural barriers were likely present, but were not documented in the EBPI project and were not identified as barriers by providers or staff in verbal discussions about the EBPI project’s progress. Interestingly, the EBPI project participants did not mention time, a commonly cited barrier to counseling, as a barrier either before or after the EBPI project implementation. Further, cost and method availability, common barriers to LARC prescribing noted in the literature were not barriers at the EBPI project site.

Implementation and Evaluation Plan

Step 6 of the EBPI model is engaging in tests of change. This is called plan, do, study, act, or “PDSA.” During this phase the form developed by the Institute for Healthcare Improvement was used to conduct periodic evaluations of the EBPI project (See Appendix F). In this process “Plan” included making a prediction about what would
happen and plan to test the change. “Do” included testing the change on a small scale and documenting problems and unexpected observations. Provider and staff training, and toolkit implementation began during the “study” phase. The “Act” stage included altering the change based on the lessons learned and preparing for the next change cycle (Institute for Healthcare Improvement, [IHI] 2014). This was accomplished using the steps outlined in Table 10. A total of seven PDSA cycles were completed during the 12-week EBPI project period (See Appendix G).

**Data Collection and Outcomes**

The clinic staff collected the data for the EBPI project. The EBPI project leader (DNP student) was blinded to patient information. Staff members reviewed printed logs of prescriptions that were organized by date and matched the contraceptive method prescribed with the patient’s age. The EBPI project leader then categorized this in a chart. The data were collected at the end of each of the three 4-week long periods of the EBPI project and the EBPI project leader shared results with each individual provider. After the first and second cycles of data collection, the team believed that DMPA was the most commonly prescribed contraceptive method. It was only during the third data collection cycle when the EBPI project leader identified that DMPA was being prescribed at each visit (four times per year) rather than simply being prescribed once with refills. Numbers of DMPA prescriptions were then recalculated using DMPA prescribed during a visit with a provider rather than simply a DMPA prescription as criteria for being counted in the analysis. Prior to this recalculation the EBPI project leader and participants believed that DMPA was the most commonly prescribed contraceptive method at the clinic.
<table>
<thead>
<tr>
<th>Cycle and Date</th>
<th>Action</th>
<th>Findings</th>
<th>Thoughts for future</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/21/14-4/28/14</td>
<td>1) LARC project site provider opinion survey</td>
<td>1) Response less enthusiastic than anticipated</td>
<td>May have given fewer tools initially.</td>
</tr>
<tr>
<td></td>
<td>2) Initial teachings</td>
<td>2) Medical director stated only licensed personnel to be involved</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3) Toolkit introduction</td>
<td>3) Clinic in-service reiterated ideas presented in initial teaching</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4) No participant use of toolkit after initial teaching</td>
<td></td>
</tr>
<tr>
<td>4/28/14-5/11/14</td>
<td>1) Continue toolkit implementation</td>
<td>1) Clinic contact person (proposed champion) stated team members “had not had time” to look at toolkits (binders) or to discuss them.</td>
<td>Clinicians will need additional intervention to affect change.</td>
</tr>
<tr>
<td></td>
<td>2) Place key algorithms from toolkit in prominent clinic locations so clinicians do not need to open toolkit to see algorithms.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5/11/14-5/18/14</td>
<td>1) Increase contact between EBPI project leader and clinic contact person by conducting in-person site visit at least weekly and email communication weekly</td>
<td>1) Participants seem responsive to EBPI project leader’s presence as evidenced by their willingness to talk openly about their prescribing practices when EBPI project leader is present. However, all participants confirmed they were not using toolkit at all.</td>
<td>1) Clinicians will need additional intervention to affect change.</td>
</tr>
<tr>
<td>Cycle and Date</td>
<td>Action</td>
<td>Findings</td>
<td>Thoughts for future</td>
</tr>
<tr>
<td>---------------</td>
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</tr>
<tr>
<td>4</td>
<td>After checking that the content was the same, EBPI project leader posted LARC insertion algorithm from reproductiveaccess.org in provider work area with the intent of increasing utilization of the algorithm by preventing having to look it up when needed.</td>
<td>Identified that LPNs and RNs were administering DMPA injections (which are administered every 12-15 weeks) and therefore presented an opportunity to counsel patients about LARC times per year</td>
<td>Plan additional training for LPNs and RNs to counsel about LARC at DMPA injection visits. Received approval from medical director for this.</td>
</tr>
<tr>
<td>5/19/14-5/26/14</td>
<td>Plan to educate LPNs and RNs about how to counsel about LARC so they could do so at DMPA injection visits</td>
<td>Only one individual available on day of planned training. This nurse was enthusiastic about counseling.</td>
<td>Plan to train additional LPNs and RNs in future weeks.</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td>Compile data from first 4 weeks of the EBPI project</td>
</tr>
<tr>
<td>5/26/14-6/8/14</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Share results (results %) and observations from first 4 weeks of EBPI project implementation and illicit feedback from participants on why they think changes were made. Hoped this conversation would encourage provider buy-in for the remainder of the EBPI project.</td>
<td>Clinicians reported that they saw minimal change in counseling and prescribing habits because they believed they were already counseling and prescribing effectively. One clinician did indicate that she had begun counseling about LARC methods first.</td>
<td></td>
</tr>
<tr>
<td>Cycle and Date</td>
<td>Action</td>
<td>Findings</td>
<td>Thoughts for future</td>
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<td>---------------</td>
<td>------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>7</td>
<td>1) Planned to compile data from second 4 weeks of EBPI project to see if positive prescribing trend persisted and present to participants</td>
<td>During data compilation EBPI project leader realized that clinicians were generating a new DMPA prescription with every injection rather than generating one prescription yearly with refills. This realization led to a significant re-examining of EBPI project outcomes. At the same time the clinic received budget cuts that disrupted data collection and limited participant availability to meet with EBPI project director.</td>
<td>In the last week of the EBPI project overall project findings were shared with each participant and the LARC project site provider opinion survey was distributed in order to compare responses with those collected prior to the EBPI project.</td>
</tr>
</tbody>
</table>

DMPA-depo medroxyprogesterone acetate (depo provera), LPN- licensed practical nurse, RN-registered nurse
Quantitative outcomes were evaluated by tracking the number and type of prescriptions written over the three-month EBPI project period. The plan prior to implementation was to collect information about how the toolkit components were used through a written “parking lot” (a notebook in the clinic’s break room where providers and staff could comment anonymously on the progress of the EBPI project) and conversations with clinic providers and staff. Unexpectedly, the “parking lot” was never utilized and repeated conversations and alterations to the PDSA cycles still resulted in no use of the written materials in the toolkit by the providers or staff. Qualitative outcomes were collected through conversations between the EBPI project leader and the clinic providers and staff as well as through the LARC project site provider opinion survey that was administered both before and after the EBPI project implementation.

There were seven PDSA cycles during the 12-week study period. Cycles were intended to occur weekly, but unforeseen events such as personnel availability made this impossible. In the first cycle the LARC project site provider opinion survey was administered by providing the survey questions on paper to clinic providers. The surveys were returned to a pile anonymously. The initial teaching was conducted (described above) and the written toolkit (a collection of documents organized in a three ring binder and distributed to each individual provider and work area) was introduced to the participants. Responses were less enthusiastic than anticipated. After the initial teaching very few questions were asked. When the EBPI project leader asked what components of the toolkit attendees could picture themselves using one provider said “I just need time to digest this,” and no one else responded. Another unanticipated barrier was that the medical director stated after the initial teaching that he wanted the scripting portion of the
toolkit limited to providers and nurses due to “medico-legal concerns.” A significant part of the toolkit concept was to have consistency in message delivery from all individuals that patients at the site might interact with. The EBPI project leader reiterated that the goal was for no individual’s bias to create a barrier to the patient’s method choice.

Further, a required staff in-service for the entire facility, that the clinic is a part of, included a presentation on adolescent health that reiterated the same themes presented in the initial teaching. While this was positive in terms of reinforcing concepts, it also took away the day that EBPI project participants had anticipated being able to review the toolkit. The clinic liaison reported that no one had opened the binders during the first week. The EBPI project leader’s initial reaction was that participants might have been given too many resources at once. For cycle two the EBPI project leader and site director decided to post keys (from the toolkit) in prominent locations around the clinic where attendees would see them without having to open the toolkit (See Appendix H). Specifically, algorithms were placed on the walls in provider offices and on the medication sample closet (where providers would go to retrieve contraceptive methods). At the end of cycle two participants reported that they still had not even opened the binders. The EBPI project leader and the site director decided to try more “face time” between the EBPI project leader and EBPI project participants as the next intervention. This was based on the site director’s expert opinion having worked in a leadership role with this particular group of clinicians.

For cycle three the EBPI project leader planned to visit the clinic at least once per week and, in addition, to exchange email with the project liaison once per week. The site director had identified an EBPI project liaison prior to beginning the EBPI project. This
individual was chosen due to her interest in promoting change at the site as perceived by the site director. During these visits and emails the EBPI project leader inquired about the participants’ prescribing patterns and their use of the toolkits. Participants became more talkative with the more frequent in-person visits during this cycle, but still not one participant opened or utilized the written materials. An unexpected finding during this cycle was that one clinician revealed she was consulting an algorithm for LARC insertion from another source when she had questions about when to start a method. This clinician stated she was more comfortable with this algorithm (compared to the ones in the toolkit that were now also posted around the clinic) because she had already been using it and that she looked it up online each time she wanted to access the LARC insertion algorithm.

In response to the clinician who was using an algorithm from an outside source, for the fourth cycle the algorithm in question was examined for accuracy and found to be nearly identical to the algorithm in the implemented toolkit. Therefore, the EBPI project leader printed copies of this algorithm and posted them alongside the toolkit algorithms in the provider offices and on the door of the sample prescription closet. In person conversations with participants during cycle four revealed that when patients presented for DMPA injections (every 11-13 weeks) they were seen by a licensed practical nurse (LPN) or registered nurse (RN) rather than a provider and therefore, if contraceptive counseling was going to occur at these visits the LPNs and RNs would need additional training in LARC counseling. Permission to provide this training was obtained from the clinic’s medical director.
For cycle five, additional training for LPNs and RNs in how to counsel about LARCs was planned. This included information about determining appropriateness of LARC methods for individual patients and scripting (from the toolkit) about the benefits of LARC methods. Unfortunately, due to illness, only one nurse was available for training during the planned time. This individual was very responsive to the discussion of counseling about LARCs at DMPA injection visits and it was revealed that this individual was not previously aware that a LARC method could be initiated before the subsequent DMPA injection was due. Conversations with participants continued to reveal that no participant had read or utilized any written component of the toolkit—including the posted algorithms.

For the sixth cycle, data from the first four weeks of the EBPI were compiled and evaluated. LARC prescribing for women ages 15-25 had increased from 6% to 18%. Since findings were positive despite lack of use of the written components of the toolkit, the EBPI project leader met with each participant individually to illicit feedback from participants on why they thought prescribing changes had occurred. Clinicians responded that they saw minimal change in counseling and prescribing habits because they believed they were already counseling and prescribing effectively. One clinician did indicate that she had begun counseling about LARC methods first. Again, each participant verified in conversation with the EBPI project leader that she had not utilized the written toolkit materials in any way and did not foresee him or herself doing so in the future. Other providers responded verbally and by email that they did not know why a change was noted, that they did not do anything to affect the change, and that it may have been due to chance. Specific responses included the following: “I’m not sure why there has been a
difference,” “Maybe everyone feels more comfortable discussing LARCs with our patients since we received the education from you? Or maybe it’s a coincidence,” “It’s hard to say, but it’s a good thing!” and “I think the only thing that has changed with my practice is that when I list contraceptive options, I start with the LARCs and work my way down. I used to start with the pills because that’s what most patients are most familiar with.”

For cycle seven the plan was to compile and evaluate data from the second four weeks of the EBPI project. During data compilation the EBPI project leader realized that clinicians were generating a new DMPA prescription with every injection rather than generating one prescription yearly with refills. Because data was being counted based on the number of prescriptions generated for each method type, this was essentially quadrupling the number of prescriptions for DMPA. The EBPI project leader and the data collector reexamined the numbers, altering the criteria to reflect prescriptions generated during a visit with a clinician only. At this point overall data for the entire EBPI project period was shared with each participant. At the end of cycle seven participants were once again congratulated for the positive change in prescribing for women aged 15-25 and were asked to complete the LARC project site provider opinion survey (identical to the one given before the initial teaching), again, on paper and returned anonymously, in order to evaluate any changes in opinion about LARC methods.

**Evaluation and Outcomes**

The EBPI project leader identified several components to evaluate during the EBPI project period. Initially, the number of LARC prescriptions as a percentage of overall contraceptive prescriptions was recorded. This was done using the clinic’s
electronic health record and was tallied by a staff nurse. The EBPI project leader measured the frequency with which toolkit components were used by conducting frequent informal conversations with and participants. Participant opinions were measured by administering the same survey before and after the intervention (see Table 11).

Table 11

<table>
<thead>
<tr>
<th>Evaluation component</th>
<th>Measurement approach and outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of LARC prescriptions written as a percentage of overall contraceptive prescriptions written during the study period</td>
<td>*Electronic health record allowed for tracking this measure. Nurse on clinic staff tabulated prescriptions by prescription type, month, and patient’s age.</td>
</tr>
<tr>
<td>Frequency with which toolkit components were used</td>
<td>*Toolkit components were not used, other than possibly algorithms that were posted. Changes in provider counseling process were determined through conversations with individual participants.</td>
</tr>
<tr>
<td>How patient materials were utilized</td>
<td>Materials provided in toolkit were not utilized</td>
</tr>
<tr>
<td>Participant opinion</td>
<td>Opinion surveys administered before and after the intervention revealed few changes. Most notably, one provider began counseling about LARC methods at the beginning of her contraceptive counseling rather than at the end.</td>
</tr>
</tbody>
</table>
IV. FINDINGS

Population Demographics

During the study period 42 women ages 15-25 received contraceptive prescriptions as did 64 women ages 26 years and older for a total of 106 women. The site primarily served women with incomes at or below 100% of the federal poverty level. Data about language is not available for the study period, but in the most recent year that data was collected at the site, 38% of women did not speak English as their primary language or did not speak English at all (Clinic Site Director, personal communication March 12, 2014).

Outcomes of the Evidence-Based Practice Improvement Project

Outcomes were tracked using the data collection tool (See Table 12). Prescribing of LARC methods for women ages 15-25 increased over the course of the EBPI project period from 6% to 20% of all contraceptive prescriptions written for this age group (See Table 13). However, LARC prescribing in women 26 and older declined during the EBPI project period from 30% to 18%. Prescribing outcomes were tracked by method type (progestin IUD, copper IUD, contraceptive implant, DMPA, or contraceptive pills), whether the method was a LARC or not (see Table 13), and by age group (15-25 years, or 26 years and older) (see Table 14). Clinic providers and staff did not utilize the toolkit as expected. It is possible that interaction with the EBPI project leader was the only factor in altering prescribing patterns. No one wrote in the parking lot. All clinicians stated they were supportive of LARC prior to the EBPI project and that, therefore, their
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<tr>
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</thead>
<tbody>
<tr>
<td>Number of prescriptions for contraceptive Implant in women 15-25</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Number of prescriptions for contraceptive Implant in women 26 and older</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of prescriptions for Progestin-containing IUS in women 15-25</td>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Number of prescriptions for Progestin-containing IUS in women 26 and older</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Number of prescriptions for copper IUD in women 15-25</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of prescriptions for copper IUD in women 26 and older</td>
<td>3</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Number of prescriptions for DMPA in women 15-25</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Number of prescriptions for DMPA in women 26 and older</td>
<td>4</td>
<td>3</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>Number of prescriptions for OCP in women 15-25</td>
<td>10</td>
<td>8</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Ring: 1</td>
<td></td>
<td>Ring: 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of prescriptions for OCP in women 26 and older</td>
<td>14</td>
<td>11</td>
<td>15</td>
<td>13</td>
</tr>
</tbody>
</table>
Table 13

Percentages of all Contraceptive Prescriptions that are LARC Methods by Patient Age

<table>
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<tbody>
<tr>
<td>Percent of all contraceptive prescriptions that are LARC methods in women 15-25</td>
<td>1/16=6%</td>
<td>3/17=18%</td>
<td>3/15=20%</td>
<td>2/10=20%</td>
</tr>
<tr>
<td>Percent of all contraceptive prescriptions that are LARC methods in women 26 and older</td>
<td>9/27=30%</td>
<td>3/17=18%</td>
<td>2/25=8%</td>
<td>2/22=9%</td>
</tr>
<tr>
<td>Percent of all contraceptive prescriptions that are LARC methods in all women</td>
<td>10/43=23%</td>
<td>6/34=18%</td>
<td>5/40=13%</td>
<td>4/32=12.5%</td>
</tr>
</tbody>
</table>

Table 14

Number of Prescriptions by LARC vs. Other Methods by Patient Age

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Number of prescriptions for other contraceptive methods in women 15-25</td>
<td>15</td>
<td>14</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Number of prescriptions for other contraceptive methods in women 26 and older</td>
<td>18</td>
<td>14</td>
<td>23</td>
<td>20</td>
</tr>
<tr>
<td>Number of prescriptions for LARC methods in women 15-25</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Number of prescriptions for LARC methods in women 26 and older</td>
<td>9</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>
counseling had not changed. One exception to this was that one provider noted she had begun counseling about LARC methods at the beginning of a contraceptive discussion rather than at the end. The EBPI leader learned that at this site nurses attend ¾ of all DMPA visits and that the initial understanding among the team about DMPA trends in usage was inaccurate. There were no observations made about cultural variations in LARC desire among patients.

Changes in provider opinion and attitude were measured qualitatively through administration of the same LARC project site provider opinion survey before and after the intervention (See Appendix A). Items that remained consistent both before and after the EBPI project were: Concern about difficult device insertions and removals and concern about patient complaints of unpredictable bleeding. Changes noted in the LARC project site provider opinion survey that followed the intervention included: One provider shifting from counseling about LARC in patients not wanting pregnancy for 1.5 years to patients not wanting pregnancy for one year and one provider counseling about LARC at the beginning of contraceptive counseling rather than at the end.

The question was “Among healthcare providers in a public health clinic, how does utilization of an evidence-based toolkit for providers, staff, and patients about long acting reversible contraception (LARC), compared to no intervention, affect the percentage of LARC prescriptions among all contraceptive prescriptions written for women ages 15-25 over three months.” The goal of the EBPI project was to increase the percentage of contraceptive prescriptions that were LARC methods written for patients aged 15-25. The goal was met with regard to these patients. LARC prescribing increased from 6% to 20% for patients in this age group. Because the numbers of patients in this
age group was small at the EBPI project site, the EBPI project was expanded to address contraceptive prescribing for women aged 26 and older. The goal was not met with patients aged 26 and older (See figures 4 and 5).

Figure 4. July 2014 Contraceptive Prescriptions at EBPI project site for patients age 15-25 years. LARC-long acting reversible contraceptive

Figure 5. July 2014 Contraceptive Prescriptions at EBPI project site for patients of all ages. LARC-long acting reversible contraceptive
Economic outcomes

During the EBPI project period an additional two or three women aged 15-25 years received contraceptive methods that decreased their risk of pregnancy over the ensuing year from 8% to less than 1%. If only one woman avoids an unintended pregnancy due to this intervention a cost savings could be realized. According the Guttmacher Institute (2011), unintended pregnancy costs U.S. taxpayers approximately eleven billion dollars per year. If 60% of young women using contraception used the most effective methods, as they did in The Contraceptive Choice Project, significant cost savings could be realized. Laliberte and colleagues (2014) reiterated that provision of any method of contraception, but especially LARC, is associated with significant cost savings when compared to the cost of unintended pregnancy.

Findings from opinion surveys

The first question in the LARC project site provider opinion survey was “What methods come to mind when you think of ‘long acting reversible contraceptives’ (sometimes called LARC methods)?” Prior to EBPI project implementation providers listed correct responses but responses included a variety of brand names and varied vocabulary about method type. After the EBPI project, answers to this question included more streamlined terminology. Providers answered with only two terms “IUDs” and “Nexplanon.”

The second question was “What are your initial thoughts when you hear the term long acting reversible contraceptives?” Before the EBPI project implementation providers mentioned efficacy and side effects in response to their initial thoughts regarding LARC methods. After the EBPI project, one participant was better able to
quantify the efficacy by stating that LARC methods are as effective as tubal ligation.
Both before and after the EBPI project it was mentioned that the term “LARC” is not patient friendly. Of note, after the EBPI project, one participant responded to this question with the concern that LARC methods can be “tricky to insert/remove.”

The third question was “Are there certain patients for whom you are more or less likely to discuss long acting reversible methods?” This group of providers did not express preference either before or after the EBPI project about which women were appropriate candidates for LARC in terms of age or number of previous pregnancies. Notably, prior to the EBPI project one respondent stated that she/he would not consider LARC for a patient who wanted to avoid pregnancy for less than 1.5 years. After the EBPI project there was also only one response regarding length of time the patient desired to avoid pregnancy and that time it was one year.

The fourth question was “What are barriers to using these methods for you as a practitioner?” Both before and after the EBPI project themes that emerged in response to this question included patient misinformation as well as participant advantage to having all of the LARC methods available on site. Prior to the EBPI project respondents expressed concern about having had “several” difficult insertions and removals, the bleeding profile with Nexplanon, cost, and the “invasiveness” of the methods. After the EBPI project concerns included perceived patient lack of follow through with follow-up visits and the mention of the “occasional” difficult insertion.

The fifth question was “What are some barriers in your practice for patients to receive these methods?” Before the EBPI project answers included cost, personal bias, appointment times, and patient fear of insertion or patient fear due to misinformation in
the media. After the EBPI project one respondent exclaimed “very few!” while others mentioned lack of back up for difficult insertions and insertion failure.

The sixth and final question was “What do you perceive as patient barriers to use?” Prior to the EBPI project respondents mentioned stock (meaning having the method(s) available on-site), patients needing multiple visits if pregnancy status could not be determined, fear of pain, bleeding pattern, cost, and patient concern that the methods were “too permanent.” After the EBPI project, responses to this question included the invasiveness of the procedure, bleeding pattern, misperceptions about risks, and the methods being “too long-term.”

Overall persistent themes included bleeding pattern, difficult insertions, and patient misconceptions about risk and permanency of LARC methods. Changes noted included a better understanding of LARC methods efficacy, consistency of language among respondents about which methods are LARC methods. After the EBPI project no respondents mentioned cost, appointment times, or method availability as barriers possibly indicating their increased awareness that these barriers were not applicable at their site.

Participants repeatedly reported that they never opened the toolkit. Interestingly they did not read the section on difficult insertions though this continued to be a concern for them throughout the EBPI project. Additionally, it is challenging to measure how frequently participants looked at the posted algorithms or how their prescribing habits may have changed based on conversations with the EBPI project leader. Findings are extrapolated from what participants told the EBPI project leader and the changes noted in
the LARC project site provider opinion surveys administered before and after the EBPI project (See Table 15).
Table 15  

*Responses to LARC Project Site Provider Opinion Survey*

<table>
<thead>
<tr>
<th>Question</th>
<th>Responses before EBPI project implementation</th>
<th>Responses after EBPI project implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>What methods come to mind when you think of “long acting reversible contraceptives” (sometimes called LARC methods)?</td>
<td>Nexplanon, Mirena, Paragard, Skyla, Nexplanon, IUDs, IUD, implants, injectables, IUDs and nexplanon,</td>
<td>Nexplanon, IUDs (both)</td>
</tr>
<tr>
<td>What are your initial thoughts when you hear the term long acting reversible contraceptives</td>
<td>Effective Excellent methods for contraception. Sometimes less desirable side effects Efficacy, convenience, cost not a patient/client friendly term</td>
<td>Efficacy and ease of use Not a patient friendly phrase Reliable, safe, can be tricky to insert/remove As effective as a tubal ligation</td>
</tr>
<tr>
<td>Are there certain patients for whom you are more or less likely to discuss long acting reversible methods?</td>
<td>More likely: pregnant patients, teenagers, less likely: patients who come in requesting shorter-acting methods More likely: women who will use method for more than 1.5 years Teenagers, multiparous Discuss with everyone</td>
<td>Not really-maybe if their personal situation didn’t seem appropriate for LARC, I guess. Almost everyone, not someone who wants a pregnancy in 1 year No, I discuss them with all patients who desire contraception</td>
</tr>
<tr>
<td>Question</td>
<td>Responses before EBPI implementation</td>
<td>Responses after EBPI project implementation</td>
</tr>
<tr>
<td>----------</td>
<td>---------------------------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>What are barriers to using these methods for you as a practitioner?</td>
<td>Nexplanon’s bleeding profile makes me wary, recently had several difficult IUD removals which also makes me wary</td>
<td>Misinformation that patients receive from media, friends, etc. Lack of patient follow-through (sometimes patients don’t return for visits)</td>
</tr>
<tr>
<td></td>
<td>Pt. fear of method/insertion, s/e profile</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cost, education/myths/stigma, invasiveness</td>
<td>We’re fortunate to have methods available for uninsured</td>
</tr>
<tr>
<td></td>
<td>We are very fortunate to have all methods available including for women without insurance</td>
<td>Occasionally have difficulty with insertion of IUD</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I can’t think of any</td>
</tr>
<tr>
<td>2. What are some barriers in your practice for patients to receive these methods?</td>
<td>Scary, commercials about Mirena, cost, hearing negative stories from family and friends, fear of pain with insertion</td>
<td>Very few! We have LARCs available any time and are, as a team, very pro-LARCs.</td>
</tr>
<tr>
<td></td>
<td>Sometimes stock</td>
<td>Maybe that we don’t have a lot of back up for difficult insertions</td>
</tr>
<tr>
<td></td>
<td>Cost, personal bias</td>
<td>Not many-usually if they opt to not use</td>
</tr>
<tr>
<td></td>
<td>Limited appointment times (sometimes)</td>
<td>I am happy to insert any LARC, but sometimes IUD insertion fails for whatever reason, so after that failure some patients may not want to try again.</td>
</tr>
<tr>
<td>Question</td>
<td>Responses before EBPI implementation</td>
<td>Responses after EBPI project implementation</td>
</tr>
<tr>
<td>----------</td>
<td>--------------------------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>What do you perceive as patient barriers to use?</td>
<td>Sometimes run out of Nexplanon, don’t stock Skyla, patients come in with recent unprotected sex and have to return in 2 weeks for insertion</td>
<td>Having something “inserted” makes patients nervous. Also, the varied bleeding pattern of the Nexplanon turns some patients off.</td>
</tr>
<tr>
<td></td>
<td>Fear of painful insertion, some think it is “too permanent” even if they don’t want pregnancy for several years, partner dissatisfaction, s/e (bleeding)</td>
<td>Perceptions about risk or harm</td>
</tr>
<tr>
<td></td>
<td>Education, cost, lack of support</td>
<td>Lack of education/knowledge/misconceptions</td>
</tr>
<tr>
<td></td>
<td>Fear, misinformation, negative “word of mouth” info, cultural bias</td>
<td>Fear/worry about side effects</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Seems “too long-term,” They don’t live in a long-term world often</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mostly, the barriers to getting care at all (transportation, child-care, life, etc.)</td>
</tr>
</tbody>
</table>
V. DISCUSSION

Based on the results of the internal and external information gathered prior to the EBPI project, the EBPI project leader believed that giving providers the tools to respond to their concerns about LARC prescribing would result in an increase in LARC prescriptions as a percentage of all contraceptive prescriptions. The EBPI project leader also assumed that providers agreed that change was necessary and were motivated to change their practice. The contribution to knowledge that stems from this EBPI project is that, in addition to tools, resources, and leadership support, provider buy-in is necessary for change to take place.

The purpose of the EBPI project was to increase provider disclosure of LARC methods and the goal was to increase the percent of contraceptive prescriptions that were LARC methods for women ages 15-25 years. In the original Contraceptive Choice Project investigators found that 60% of adolescent women chose LARC methods when cost, availability, and misinformation were removed as barriers (Mested, et al., 2011). In this EBPI project, LARC prescribing increased from 6% to 20% of all contraceptive prescriptions for women aged 15-25. Notably, the actual numbers of patients mean that results are unlikely to have reached statistical significance and could have been due to chance or to other variables. In The Contraceptive Choice Project, trained contraceptive counselors used scripted materials to counsel about LARC and other methods and reported the patient’s chosen method to the physician or nurse practitioner. In this EBPI project, the same scripting was made available to the healthcare providers, but they
elected not to use it. In The Choice Project, all staff was trained in LARC messaging to ensure message consistency to patients. In this EBPI project all staff was present for the initial training, but unlicensed personnel where prohibited from communicating with patients about the patient’s choice of contraceptive method. Notably, in this EBPI project, there was not always a clinician on-site who could assist with challenging LARC insertions. It is possible to infer that because The Contraceptive Choice Project was a research project, all clinicians in that project had “buy-in” and felt competent performing LARC insertions. Therefore fear of insertion difficulty or failure likely played less of a part in clinician decision making in that project. In both The Choice Project and this EBPI project, all methods of contraception were available the day of the initial visit as cost was not a barrier. Limitations in this EBPI project included the small sample size and the limited time frame of the intervention.

Dissemination of Findings

Step 7 of the EBPI model is “Disseminate best practices.” The EBPI project leader and site director plan to present findings from the project at the annual project fair at the Ohio Nurses Association and at the annual state of Ohio gathering of Certified Nurse Midwives. Further, findings from the EBPI project may be implemented in other clinics run by the same public health facility as well as other local clinics receiving Title X funding. Finally, the EBPI project leader plans to present findings to her APRN students in order to affect change at their practice sites. Stakeholders included patients and their families, the clinic staff and providers, and the public health organization that includes the clinic. Stakeholders in dissemination include any clinicians who can learn from the project and their future patients. Individuals directly involved in the EBPI
project, in addition to the EBPI project leader, included the clinic director, the three advanced practice nurses at the site, the medical director, and the clinic staff.

**Future Recommendations & Conclusion**

Because the problem of unintended pregnancy persists and major professional organizations support increased LARC prescribing as one method of addressing the problem, this project cannot be abandoned. Recommendations for the future include surveying providers prior to implementation of any project to assess whether providers perceive that change is necessary. Second, a recommendation for the future is for leadership to clearly communicate a goal and a strategy for reaching that goal when a change is desired. In this EBPI project providers were given tools and resources but not required to use them. Finally, it might be helpful to utilize a change theory in addition to the EBPI model in order to identify and address barriers to change present that may prevent full implementation of the project.

Strength in the implementation of this EBPI project was the use of the PDSA model. When it was discovered that the written portion of the toolkit was not being used, it was important to identify an intervention that might be more effective. A thought for the future would be to verbally address each concern with participants as it arose. For example, the EBPI project leader could provide training on what to do to make IUD insertions less difficult or could review charts to identify missed opportunities for use of the toolkit components. Participants may be more responsive to practical application of components of the tool kit rather than access to a written description of a protocol. However, if they do not buy-in to the idea that change is necessary it is unclear that any intervention would work.
An additional limitation of the EBPI project was that site leadership did not set expectations for follow through on use of the toolkit components. The ideal next step would be to continue the EBPI project at the same site with modifications to assess provider buy-in and leadership requirement of available tools and resources. Another possible addition would be to trigger providers with a pop up message in the electronic health record recommending LARC whenever a contraceptive prescription was ordered.

**Summary**

According to Guttmacher Institute (2013) American women spend an average of 30 years avoiding pregnancy. Increasing provider disclosure of LARC methods is critical, as LARC methods have been shown to reduce the rates of user error and unintended pregnancy, particularly among adolescent and young women. Therefore, it is the ethical duty of all providers who care for women to educate their patients about the full range of contraceptive options and to work toward full availability of these options for women of all ages and socioeconomic groups. When healthcare facilities that serve low-income women fail to provide access to and advocacy for LARC, this population remains unnecessarily vulnerable to unintended pregnancy. Additional pregnancies and children place a disproportionate burden on impoverished women, further limiting their access to education and employment and often keeping them in unhealthy relationships (DHHS, 2012a).
References


Appendix A

Patient and Provider Surveys

PATIENT SURVEY

1) What kinds of birth control are you aware of?

2) What type of birth control would you recommend to a friend?

3) What myths or rumors have you heard about certain types of birth control?

4) If you could have any kind of birth control you wanted for free, what would you want?

5) If your doctor (or other healthcare provider) recommended a long-term form of birth control, what would you think?

PROVIDER SURVEY

What methods come to mind when you think of “long acting reversible contraceptives” (sometimes called LARC methods)?

1) What are your initial thoughts when you hear the term long acting reversible contraceptives

2) Are there certain patients for whom you are more or less likely to discuss long acting reversible methods?

3) What are barriers to using these methods for you as a practitioner?

4) What are some barriers in your practice for patients to receive these methods?

5) What do you perceive as patient barriers to use?
Appendix B

Patient Survey Results from COHMAB project

And

Provider Survey Results from COHMAB project

**LARC COHMAB PATIENT SURVEY**

6) What kinds of birth control are you aware of?

<table>
<thead>
<tr>
<th>Method</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>pill</td>
<td>4</td>
</tr>
<tr>
<td>condoms</td>
<td>4</td>
</tr>
<tr>
<td>shot</td>
<td>2</td>
</tr>
<tr>
<td>IUD/Mirena</td>
<td>2</td>
</tr>
<tr>
<td>Nuvaring</td>
<td>1</td>
</tr>
<tr>
<td>patch</td>
<td>1</td>
</tr>
</tbody>
</table>

7) What type of birth control would you recommend to a friend?

<table>
<thead>
<tr>
<th>Method</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>condom</td>
<td>3</td>
</tr>
<tr>
<td>patch</td>
<td>1</td>
</tr>
<tr>
<td>pill</td>
<td>2</td>
</tr>
<tr>
<td>Talk to your doctor</td>
<td>2</td>
</tr>
</tbody>
</table>

8) What myths or rumors have you heard about certain types of birth control?

**IUDs**
“Could still get pregnant and it could hurt the baby”
Cause infection
Change period
“IUDs fall out and hurt”
hair falls out
Negative Mirena adds on TV

**Other**
Cancer from pills
Not 100% effective
Bruising from Nexplanon
Sex feels better without birth control
Pills make you gain weight

9) If you could have any kind of birth control you wanted for free, what would you want?

<table>
<thead>
<tr>
<th>Method</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condoms</td>
<td>2</td>
</tr>
<tr>
<td>Mirena</td>
<td>1</td>
</tr>
</tbody>
</table>

1 additional respondent said “something like an IUD, but one that doesn’t hurt”

10) If your doctor (or other healthcare provider) recommended a long-term form of birth control, what would you think?
“Not natural”
“Don’t like things in my body”
“Would think about it, but only after having children”
“Would appreciate the information”

Provider Survey Results from COHMAB project

**LARC COHMAB PROVIDER SURVEY**

5 Respondents

1) What methods come to mind when you think of “long acting reversible contraceptives” (sometimes called LARC methods)?

<table>
<thead>
<tr>
<th>Method</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>IUD</td>
<td>3</td>
</tr>
<tr>
<td>Mirena</td>
<td>4</td>
</tr>
<tr>
<td>Paragard</td>
<td>2</td>
</tr>
<tr>
<td>Nexplanon/implanon/implant</td>
<td>4</td>
</tr>
</tbody>
</table>

2) What are your initial thoughts when you hear the term long acting reversible contraceptives

- Good choice for many clients
- Multiple options, good methods typically
- Wise & Responsible Decision
- Wonderful I know a lot of women who would benefit from this form of contraceptive; however, cost could be a factor
- More patients should use them

3) Are there certain patients for whom you are more or less likely to discuss long acting reversible methods?

I discuss a reproductive plan with all clients

IUD/Paragard: - less likely- patients with no children whom want children in the future - more likely older patients 40+ whom are high risk in regards to OB, to prevent pregnancy, women whom are done having children but not 100% sure Implant more likely- teenagers, young adults in college

Yes

NO, however woman without insurance may not be able to afford these methods

Ones who seem very intolerant of bleeding

4) What are barriers to using these methods for you as a practitioner?

N/A

Mirena/Paragard: $$$ for private patients based on deductible/copay/etc...
Our Clinic is a Prenatal Clinic only. We do not give birth control but we can discuss options and provide them with community resources to receive the birth control of choice.

Cost Some cultural concerns for the patient

None

5) What are some barriers in your practice for patients to receive these methods?

N/A

none- several physician do these procedures

False information from parents and grandparents. Patients may also experience Insurance problems.

Cost Site of mobile, cannot provide direct services, however, can refer to our hospital site clinics.

patients not having insurance, but being outside the parameters of LARC eligibility

6) What do you perceive as patient barriers to use?

Concerns about side affects

side effects, risk for perforation (IUD/Paragard), irregular periods, what they hear from friends and family

Not being responsible and false information received from family members.

Cost Fear of not getting pregnant again

Bleeding and cramping that they will experience. Even when you educate, they call and complain, often wanting the device removed.
Appendix C
Rapid Critical Appraisal Tool

Print & Use to Rapidly Critically Appraise Evidence-based Clinical Practice Guidelines

CREDIBILITY

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Who were the guideline developers?</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Were the developers representative of key stakeholders in this specialty (interdisciplinary)?</td>
<td>Yes</td>
</tr>
<tr>
<td>3.</td>
<td>Who funded the guideline development?</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Were any of the guideline developers funded researchers of the reviewed studies</td>
<td>Yes</td>
</tr>
<tr>
<td>5.</td>
<td>Did the team have a valid development strategy?</td>
<td>Yes</td>
</tr>
<tr>
<td>6.</td>
<td>Was an explicit (how decisions were made), sensible and impartial process used to identify, select and combine evidence?</td>
<td>Yes</td>
</tr>
<tr>
<td>7.</td>
<td>Did its developers carry out a comprehensive, reproducible literature review within the past 12 months of its publication/revision?</td>
<td>Yes</td>
</tr>
<tr>
<td>8.</td>
<td>Were all important options and outcomes considered?</td>
<td>Yes</td>
</tr>
<tr>
<td>9.</td>
<td>Is each recommendation in the guideline tagged by the level/strength of evidence upon which it is based and linked with the scientific evidence?</td>
<td>Yes</td>
</tr>
<tr>
<td>10.</td>
<td>Do the guidelines make explicit recommendations (reflecting value judgments about outcomes)?</td>
<td>Yes</td>
</tr>
<tr>
<td>11.</td>
<td>Has the guideline been subjected to peer review and testing?</td>
<td>Yes</td>
</tr>
</tbody>
</table>

APPLICABILITY/GENERALIZABILITY

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>12.</td>
<td>Is the intent of use provided (e.g. national, regional, local)?</td>
<td>Yes</td>
</tr>
<tr>
<td>13.</td>
<td>Are the recommendations clinically relevant?</td>
<td>Yes</td>
</tr>
<tr>
<td>14.</td>
<td>Will the recommendations help me in caring for my patients?</td>
<td>Yes</td>
</tr>
<tr>
<td>15.</td>
<td>Are the recommendations practical/feasible (e.g. resources [people and equipment] available?</td>
<td>Yes</td>
</tr>
<tr>
<td>16.</td>
<td>Are the recommendations a major variation from current practice?</td>
<td>Yes</td>
</tr>
<tr>
<td>17.</td>
<td>Can the outcomes be measured through standard care?</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Appendix D

Agency Approval
And
Wright State University IRB Approval

“Available upon request from project author.”
Appendix E

Teaching Plan

Objectives:

Recall the rate of unintended pregnancy nationally  
State the most effective forms of contraception  
State factors that have been demonstrated to increase LARC method disclosure by providers  
State resources for LARC prescribing questions including The Choice Project algorithms and the USMEC

Content:

- Clinical Issues  
  - 1) Unintended pregnancy  
  - 2) LARC utilization  
  - The Problem  
  - Half of all pregnancies in the U.S. are unintended (of these almost half are due to incorrect contraceptive use)  
  - 82% of teen pregnancies are unintended  
- LARC Methods  
- Contraceptive Methods  
- Current Contraceptive Use  
- The Problem  

Long-Acting Reversible Contraceptives (LARC) including IUDs and the contraceptive implant are much more effective than pills at preventing unintended pregnancy but are underutilized.  
- Benchmarks  
  - Healthy People 2020 advocates for all title X funded clinics providing the full range of FDA approved contraceptives  
  - Barriers to increasing LARC use  
  - Current literature demonstrates that clinician misunderstanding can be a barrier to full LARC prescribing  
- Literature Continued  
- Patients-  
  - Look to providers for contraceptive advice  
- Providers-  
  - Have misconceptions about eligibility criteria for LARC methods

Findings
• Teens who heard of IUDs from a healthcare provider were almost 3x as likely to be interested in using them
• Conclusion

Provider education is important to increasing LARC utilization
• CDC guidelines (endorsed by ACOG)
• Features of a LARC friendly practice
• All women, including teens, are presumed to be good LARC candidates until a medical history indicates otherwise.
• Staff are trained to accurately respond to common LARC patient questions and concerns to encourage continuation and satisfaction.
• LARC is always discussed as the first-line option for all women, including teens.
• What are we doing at CPH?
• CPH LARC utilization
• Organizational goals
• Facilitators
• The Next Step…

One project was identified in the literature that has an existing set of interventions to increase LARC prescribing.

The Contraceptive Choice Project includes:
*Provider and staff training tools to address barriers to disclosure
*Scripted patient education to improve consistency in message delivery

• The Next Step…
• American College of OB/GYN (ACOG) has existing billing and coding tool
• CDC has existing medical eligibility criteria tool
• Choice Project LARC Insertion Algorithm
• Intervention and Evaluation
• Intervention: LARCkit (provider resource notebook)
• Goal: Increase the percentage of contraceptive prescriptions that are LARC methods
• Weekly Evaluations
• So What?
• When healthcare facilities that serve low-income adolescent and young adult women fail to provide full disclosure of LARC methods, this population remains unnecessarily vulnerable to unintended pregnancy
• What do you know about cost?
• Pathway to Choice Video
Science of Improvement: Testing Changes

Once a team has set an aim, established its membership, and developed measures to determine whether a change leads to an improvement, the next step is to test a change in the real work setting. The Plan-Do-Study-Act (PDSA) cycle is shorthand for testing a change — by planning it, trying it, observing the results, and acting on what is learned. This is the scientific method, used for action-oriented learning.

See also: Tips for Testing Changes, Linking Tests of Change, Testing Multiple Changes, Implementing Changes, Spreading Changes.

Reasons to Test Changes

To increase your belief that the change will result in improvement.

To decide which of several proposed changes will lead to the desired improvement.

To evaluate how much improvement can be expected from the change.

To decide whether the proposed change will work in the actual environment of interest.

To decide which combinations of changes will have the desired effects on the important measures of quality.

To evaluate costs, social impact, and side effects from a proposed change.

To minimize resistance upon implementation.

Steps in the PDSA Cycle

Step 1: Plan

Plan the test or observation, including a plan for collecting data.

State the objective of the test.

Make predictions about what will happen and why.

Develop a plan to test the change. (Who? What? When? Where? What data need to be collected?)
Step 2: Do
Try out the test on a small scale.

  Carry out the test.

  Document problems and unexpected observations.

  Begin analysis of the data.

Step 3: Study
Set aside time to analyze the data and study the results.

  Complete the analysis of the data.

  Compare the data to your predictions.

  Summarize and reflect on what was learned.

Step 4: Act
Refine the change, based on what was learned from the test.

  Determine what modifications should be made.

  Prepare a plan for the next test.

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Appendix G

PDSA Cycles 1-7

PDSA WORKSHEET

Cycle: 1  
Date of test: 4/21/14- 4/27/14  
Team/project:

Overall team/project aim: Increase percentage of contraceptive prescriptions written for 15-25 year olds that are LARC methods from 6% to 20% over 12 weeks

Overall population: clinic providers  
Test population: Same

What is the objective of the test?  
Note who is using scripting and what other tools are used and when

PLAN:
Briefly describe the test:
LARC project site provider opinion survey administered to participants  
Initial education and introduction of toolkit to providers and staff

How will you know that the change is an improvement?  
Provider and staff feedback initially, a change in % of LARC prescriptions overall

What driver does the change impact?  
Provider disclosure of LARC methods

What do you predict will happen?  
Initial resistance to “anything new.” May find that disclosure changes as a result of introductory session, new resources, peer and leadership pressure to favor LARC methods

Plan for change or test: who, what, when, where (use back for more detail)  
1.5 hour meeting with all providers and staff at clinic site. Introductory presentation outlining the problem and the approach to change, introduction to how to use the toolkit and answer all questions.
**PLAN**

<table>
<thead>
<tr>
<th>Test start date</th>
<th>Target test completion date</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>List the tasks necessary to complete this test (what)</th>
<th>Person responsible (who)</th>
<th>When</th>
<th>Where</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. PowerPoint presentation prepared and delivered</td>
<td>EBPI project leader</td>
<td>4/21/14</td>
<td>clinic</td>
</tr>
<tr>
<td>2. Binders prepared and delivered</td>
<td>EBPI project leader</td>
<td>4/21/14</td>
<td>clinic</td>
</tr>
<tr>
<td>3. Site director and medical director present and united regarding necessity of EBPI project</td>
<td>Site director Medical director</td>
<td>4/21/14</td>
<td>clinic</td>
</tr>
</tbody>
</table>

Plan for collection of data: *(see Data Collection Plan form)*

Administered LARC project site provider opinion survey prior to beginning presentation to assess attendees’ attitudes about LARC prior to the intervention

**DO:** Test the changes.

Was the cycle carried out as planned?  
Presentation and introduction of toolkit was carried out as planned  
Responses were less enthusiastic than anticipated—very few questions asked, when EBPI project leader asked what components of the toolkit attendees could picture themselves using one provider said “I just need time to digest this,” and no one else responded.  
Thoughts—may have given fewer resources in toolkit

Medical director stated during the roll-out meeting that he wanted the scripting limited to providers and nurses for now due to “medico-legal concerns.” EBPI project leader reiterated that the goal was for no individual’s bias to create a barrier to the patient’s method choice.

Record data and observations.

What did you observe that was not part of our plan?

Agency overseeing clinic held mandatory staff in-service on STI on 4/23/14. This program included a presentation on adolescents and LARC which reinforced the material presented on Monday. However, this also replaced the providers’ administrative time and was cited as the reason they did not look through the toolkit this week (per EBPI project liaison)

**STUDY:**  
Did the results match your predictions?

Presentation response was less enthusiastic than anticipated  
4/23/14 presentation was not anticipated
Compare the result of your test to your previous performance:

What did you learn?

May be that this group was less enthusiastic due to being asked to “do” something with the material rather than just opening discussion about LARC.

**ACT:** Decide to Adopt, Adapt, or Abandon.

- [x] **Adapt:** Improve the change and continue testing plan.
  
  Plans/changes for next test: Consider pulling out pieces of toolkit to post in relevant locations in clinic. Will f/u with EBPI project liaison and site director about this.

- [ ] **Adopt:** Select changes to implement on a larger scale and develop an implementation plan and plan for sustainability

- [ ] **Abandon:** Discard this change idea and try a different one
PDSA WORKSHEET

Cycle: 2  Date of test: 4/28/14-5/11/14  Team/project:

Overall team/project aim: Increase percentage of contraceptive prescriptions written for 15-25 year olds that are LARC methods from 6% to 20% over 12 weeks

Overall population: clinic providers  Test population: Same

What is the objective of the test?
Increase utilization of toolkit components by posting prescribing algorithms in prominent locations

PLAN:
Briefly describe the test:
Participant verbal feedback was that they had not used the toolkit and that their habits had not changed. Continue toolkit utilization and post prescribing algorithms in prominent places in the clinic. Note whether placing color algorithms where contraceptives are accessed increases utilization of prescribing algorithms by providers

How will you know that the change is an improvement?
Provider and staff feedback initially, a change in % of LARC prescriptions overall

What driver does the change impact?
Provider disclosure of LARC methods

What do you predict will happen?
Seeing LARC algorithm when accessing other contraceptive methods from contraceptive storage area will prompt participants to remember the project and counsel about LARC methods

Plan for change or test: who, what, when, where (use back for more detail)

PLAN

<table>
<thead>
<tr>
<th>Test start date:</th>
<th>Target test completion date:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>List the tasks necessary to complete this test (what)</th>
<th>Person responsible (who)</th>
<th>When</th>
<th>Where</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Continue utilization of toolkit</td>
<td>clinic providers</td>
<td>4/28/14-5/6/14</td>
<td>clinic</td>
</tr>
</tbody>
</table>
Plan for collection of data: (see Data Collection Plan form)

Email communication with EBPI project liaison

DO: Test the changes.

Was the cycle carried out as planned?
No- EBPI project liaison indicated that there was no discussion among providers about toolkit or LARCs this week and they “did not have time” to look at toolkit.

Record data and observations.

What did you observe that was not part of our plan?

See above

STUDY:
Did the results match your predictions?

No. Providers still are not utilizing the toolkit, but may be utilizing the posted algorithms. Providers and staff are responsive to EBPI project leader’s presence as demonstrated by their verbal engagement when the EBPI project leader is on site.

Compare the result of your test to your previous performance:

No measurable result, participants still lacking the enthusiasm that was anticipated.

What did you learn?
Clinicians will need additional intervention to affect change

ACT: Decide to Adopt, Adapt, or Abandon.

**Adapt**: Improve the change and continue testing plan.

Plans/changes for next test:

**Adopt**: Select changes to implement on a larger scale and develop an implementation plan and plan for sustainability – Per discussion with site director, will plan more “face time” from EBPI project leader. Algorithms and reminder notes strategically placed, biweekly emails to EBPI project liaison

**Abandon**: Discard this change idea and try a different one
PDSA WORKSHEET

Cycle: 3 Date of test: 5/12/14-5/18/14 Team/project:

Overall team/project aim: Increase percentage of contraceptive prescriptions written for 15-25 year olds that are LARC methods from 6% to 20% over 12 weeks

Overall population: clinic providers Test population: Same

What is the objective of the test?
Continue use of prominently placed algorithms, increase “face time” between project leader and participants to at least once per week and check in with project liaison by email at least once each week.

PLAN:
Briefly describe the test:
Participant verbal feedback was that they had not used the toolkit and that their habits had not changed- this remains unchanged from last week. However, participants acknowledged presence of algorithms. EBPI project leader noticed that participants are eager to talk, but do not utilize the toolkits and have not used the “parking lot” which is a notebook in the break room where participants can give anonymous feedback about the EBPI project.

How will you know that the change is an improvement?
Participants will increase percentage of LARC methods prescribed.

What driver does the change impact?
Provider disclosure and prescribing of LARC methods

What do you predict will happen?
Anticipate that the EBPI project leader’s presence will keep EBPI project in participants' minds and help to clarify misperceptions verbally through organically occurring conversation since participants are not using toolkits.

Plan for change or test: who, what, when, where (use back for more detail)
Continue to encourage use of toolkit, increase participant awareness of toolkit by posting algorithms in prominent places and increasing face time with EBPI project coordinator to twice weekly.

PLAN

<p>| Test start date: | Target test completion date: |</p>
<table>
<thead>
<tr>
<th>List the tasks necessary to complete this test (what)</th>
<th>Person responsible (who)</th>
<th>When</th>
<th>Where</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Continue to encourage utilization of toolkit</td>
<td>Providers</td>
<td>5/15/14-EBPI project completion</td>
<td>clinic</td>
</tr>
<tr>
<td>2. Continue choice project LARC insertion algorithms in prominent locations</td>
<td>Site director</td>
<td>5/15/14-EBPI project completion</td>
<td>clinic</td>
</tr>
<tr>
<td>3. Increase on-site presence of EBPI project coordinator to twice weekly</td>
<td>EBPI project leader</td>
<td>5/15/14-EBPI project completion</td>
<td>clinic</td>
</tr>
</tbody>
</table>

Plan for collection of data: *(see Data Collection Plan form)*

Weekly visit to site and weekly email communication with EBPI project liaison

**DO:** Test the changes.

Was the cycle carried out as planned?

Yes

Record data and observations.

What did you observe that was not part of our plan?

One clinician uses a different insertion algorithm and looks it up online each time she wants to utilize it. This algorithm is from reproductiveaccess.org

**STUDY:**

Did the results match your predictions?

No

Compare the result of your test to your previous performance:

What did you learn?

Clinicians will continue to need additional intervention to affect change. EBPI project leader will examine contraceptive algorithms at reproductiveaccess.org to determine consistency with toolkit algorithms.

**ACT:** Decide to Adopt, Adapt, or Abandon.

- [x] Adapt: Improve the change and continue testing plan. Plans/changes for next test: examine contraceptive algorithms at reproductiveaccess.org

- [x] Adopt: Select changes to implement on a larger scale and develop an implementation plan and plan for sustainability – Per discussion with site director, will plan more “face time” from EBPI X
Abandon: Discard this change idea and try a different one

### PDSA WORKSHEET

**Cycle:** 4  
**Date of test:** 5/19/14-5/25/14  
**Team/project:** 

Overall team/project aim: Increase percentage of contraceptive prescriptions written for 15-25 year olds that are LARC methods from 6% to 20% over 12 weeks

**Overall population:** clinic providers  
**Test population:** Same

**What is the objective of the test?**

Continue use of prominently placed algorithms, increased “face time” with EBPI project coordinator to twice weekly, add “quick start algorithm” and “switching contraceptive methods” algorithm from the Reproductive Health Access Project ([http://www.reproductiveaccess.org/](http://www.reproductiveaccess.org/)) because one of the providers shared that she refers to these algorithms online as needed because she had become accustomed to doing so prior to the introduction of the toolkit. These algorithms were not added to the provider resource notebooks, but were posted in the providers’ workspace per this provider’s preference.

**PLAN:**

**Briefly describe the test:**

Reproductive Access algorithms were added to provider workspace as one provider is using these preferentially already and the information is consistent with the toolkit and the goals of the EBPI project.

**How will you know that the change is an improvement?**

Participants will prescribe an increased percentage of LARC methods

**What driver does the change impact?**

Provider disclosure and prescribing of LARC methods

**What do you predict will happen?**

Seeing LARC algorithm when accessing other contraceptive methods from contraceptive storage area will prompt participants to remember the EBPI project and counsel about LARC methods-this remains unchanged.  
Anticipate that EBPI project leader presence will keep EBPI project in participants’ minds and help to clarify misperceptions verbally through organically occurring conversation since participants are not using resource guides. Having reproductive access algorithms posted (rather than having to look them up)
online with each use) will increase the potential for LARC disclosure/prescribing at least for the one provider who prefers those algorithms.

Plan for change or test: who, what, when, where (use back for more detail)
Add algorithms from reproductive access.org to existing posted algorithms to reinforce concepts.

**PLAN**

<table>
<thead>
<tr>
<th>Test start date:</th>
<th>Target test completion date:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>List the tasks necessary to complete this test (what)</th>
<th>Person responsible (who)</th>
<th>When</th>
<th>Where</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Continue utilization of toolkit</td>
<td>Providers</td>
<td>5/15/14-5/21/14</td>
<td>clinic</td>
</tr>
<tr>
<td>2. Continue choice project LARC insertion algorithms in prominent locations</td>
<td>Site director</td>
<td>5/15/14-5/21/14</td>
<td>clinic</td>
</tr>
<tr>
<td>3. Increase on-site presence of EBPI project leader to twice weekly</td>
<td>EBPI project leader</td>
<td>5/15/14-5/21/14</td>
<td>clinic</td>
</tr>
<tr>
<td>4. Add Reproductive Access algorithms to provider workspace</td>
<td>EBPI project leader</td>
<td>5/21/14-6/2/14</td>
<td>clinic</td>
</tr>
</tbody>
</table>

Plan for collection of data: *(see Data Collection Plan form)*

Email communication with lead clinician, visit to site. Record prescribing data for first month (collected by clinic nurse)

**DO:** Test the changes.

Was the cycle carried out as planned?
Yes

Record data and observations.

Providers and staff responded positively to increased face-time. Began to spontaneously socialize with the EBPI project leader and discuss their beliefs and prescribing habits more freely.

What did you observe that was not part of our plan?

Providers are still not utilizing the toolkit. Verbally they indicate that they perceive themselves already prescribing LARC methods at every opportunity and don’t see a need to increase. At this site providers order DMPA for a year at each annual exam and the follow-up visits (every 11-15 weeks) are nurse visits in which the patient does not see a provider.

**STUDY:**
Did the results match your predictions?
No, prediction was that providers would be more enthusiastic about change once they had motivating information.

Compare the result of your test to your previous performance:

Providers are more verbally engaged with the EBPI project leader, but “buy-in” remains questionable.

What did you learn?
Face time is critical to establish the EBPI project, but cannot be part of the sustainability plan. Clinicians will need additional intervention to affect change.

**ACT:** Decide to Adopt, Adapt, or Abandon.

- **Adapt:** Improve the change and continue testing plan.
  Plans/changes for next test:
  Add: training for nurses who administer 3 of the 4 DMPA visits per patient per year.

- **Adopt:** Select changes to implement on a larger scale and develop an implementation plan and plan for sustainability – Per discussion with site director, will continue more “face time” from the EBPI project leader. Algorithms and reminder notes strategically placed, biweekly emails to lead clinician.

- **Abandon:** Discard this change idea and try a different one
PDSA WORKSHEET

Cycle: 5  
Date of test: 5/26/14-  
6/8/14  
Team/project:

Overall team/project aim: Increase percentage of contraceptive prescriptions written for 15-25 year olds that are LARC methods from 6% to 20% over 12 weeks

Overall population: clinic providers  
Test population: Same

What is the objective of the test?  
Work with nursing staff (3 nurses) to deliver LARC information at follow-up DMPA injections. At this site providers order DMPA for a year at each annual exam and the follow-up visits (every 11-13 weeks) are nurse visits in which the patient does not see a provider.

PLAN:

Briefly describe the test:  
Train RNs and LPNs to counsel at DMPA injection visits using same information from initial training tailored to the RN/LPN role at this site and focusing on LARC as an alternative to DMPA.

How will you know that the change is an improvement?  
Participants will increase the percentage of LARC prescriptions

What driver does the change impact?  
Provider disclosure and prescribing of LARC methods

What do you predict will happen?  
RNs and LPNs will use DMPA injection visits to counsel about LARC. Patients will then request LARC which will be measured by an increase in LARC prescriptions.

Plan for change or test: who, what, when, where (use back for more detail)

Train RNs and LPNs to counsel at DMPA injection visits using same information from initial training tailored to the RN/LPN role at this site and focusing on LARC as an alternative to DMPA.

PLAN

Test start date:  
Target test completion date:
<table>
<thead>
<tr>
<th>List the tasks necessary to complete this test (what)</th>
<th>Person responsible (who)</th>
<th>When</th>
<th>Where</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Continue utilization of toolkit</td>
<td>Providers</td>
<td>5/15/14-5/21/14</td>
<td>clinic</td>
</tr>
<tr>
<td>2. Continue choice project LARC insertion algorithms in prominent locations</td>
<td>Site director</td>
<td>5/15/14-5/21/14</td>
<td>clinic</td>
</tr>
<tr>
<td>3. Increase on-site presence of EBPI project coordinator to twice weekly</td>
<td>EBPI project leader</td>
<td>5/15/14-5/21/14</td>
<td>clinic</td>
</tr>
<tr>
<td>4. Add Reproductive Access algorithms to provider workspace</td>
<td>EBPI project leader</td>
<td>5/21/14-6/2/14</td>
<td>clinic</td>
</tr>
<tr>
<td>5. Train RNs and LPNs to counsel about LARCs at DMPA visits.</td>
<td>EBPI project Leader RNs LPNs</td>
<td>6/2/14-6/9/14</td>
<td>clinic</td>
</tr>
</tbody>
</table>

Plan for collection of data: (see Data Collection Plan form)

Email communication with lead clinician, visit to site. Record prescribing data (collected by nurse)

**DO:** Test the changes.

Was the cycle carried out as planned?
No, two of the three nurses were out sick during the scheduled time, so EBPI project leader met with each nurse individually over several weeks.

Record data and observations.

All three nurses verbally expressed interest in the EBPI project and in educating patients at f/u DMPA visits. Two nurses stated that the information was not a change from how they already counseled at these visits. One nurse stated that she had not previously known that a LARC could be initiated prior to the next scheduled DMPA injection.

What did you observe that was not part of our plan?

Providers are still not utilizing the toolkit. Verbally they indicate that they perceive themselves already prescribing LARC methods at every opportunity and don’t see a need to increase.

See above

**STUDY:**
Did the results match your predictions?

Fewer nurses were educated than planned in first week so cycle was extended to two weeks.

Compare the result of your test to your previous performance:
What did you learn?
Need to continue to be available for face time and follow up as needed to adapt to clinic schedule and staffing.

**ACT:** Decide to Adopt, Adapt, or Abandon.

- [x] **Adapt:** Improve the change and continue testing plan. Plans/changes for next test: Share results from first 4 weeks of EBPI project, Give positive feedback about changes noted in hopes that this will increased awareness of and enthusiasm about EBPI project.

- [x] **Adopt:** continue training anyone who administers DMPA at this site. Currently all such personnel have been trained.

- [ ] **Abandon:** Discard this change idea and try a different one
PDSA WORKSHEET

Cycle: 6
Date of test: 6/9/14 - 6/29/14

Team/project: 

Overall team/project aim: Increase percentage of contraceptive prescriptions written for 15-25 year olds that are LARC methods from 6% to 20% over 12 weeks

Overall population: clinic providers
Test population: Same

What is the objective of the test?
Continue as above from previous weeks. Added feedback that LARC prescribing had increased for adolescents and young women and posed two questions to prescribers by email. Questions were developed by the site director based on her knowledge of the individuals involved:

1) Why do you think LARC prescribing has increased?
2) What have you done to contribute to the increase?

PLAN:

Briefly describe the test:
Continue as above from previous weeks. Added feedback that LARC prescribing had increased for adolescents and young women and posed two questions to prescribers by email:

3) Why do you think LARC prescribing has increased?
4) What have you done to contribute to the increase?

Continue as above from previous weeks.

How will you know that the change is an improvement?
Participants will prescribe an increased percentage of LARC methods

What driver does the change impact?
Provider disclosure and prescribing of LARC methods

What do you predict will happen?
Positive feedback about first month’s data may renew interest in the EBPI project. Reflecting on questions posed may increase provider “buy in” for the EBPI project.

Plan for change or test: who, what, when, where (use back for more detail)

Post positive feedback to participants by email and elicit their feedback to two questions (see above)
PLAN

<table>
<thead>
<tr>
<th>Test start date:</th>
<th>Target test completion date:</th>
</tr>
</thead>
</table>

List the tasks necessary to complete this test (what) | Person responsible (who) | When | Where |
---|---|---|---|
1. Utilization of toolkit | Providers | 5/15/14-5/21/14 | clinic |
2. Continue choice project LARC insertion algorithms in prominent locations | Site director | 5/15/14-5/21/14 | clinic |
3. Increase on-site presence of EBPI project coordinator to twice weekly | EBPI project leader | 5/15/14-5/21/14 | clinic |
4. Add Reproductive Access algorithms to provider workspace | EBPI project leader | 5/21/14-6/2/14 | clinic |
5. Give LARC prescribing feedback to providers and pose questions about why change might have occurred | EBPI project leader | 6/9/14-6/29/14 | clinic |
6. Post positive feedback (per “buy-in” article) | EBPI project leader | 6/9/14-6/29/14 | clinic |

Plan for collection of data: *(see Data Collection Plan form)*

Email communication with lead clinician, visit to site. Record prescribing data (collected by nurse)

**DO:** Test the changes.

Was the cycle carried out as planned? Yes

Record data and observations.

One provider she did alter her counseling about LARC to discuss LARC methods first. Other providers responded verbally and by email that they did not know why a change was observed, that they did not do anything to affect the change, and that it may have been due to chance. One participant wrote, “I’m not sure why there has been a difference. Maybe everyone feels more comfortable discussing LARCS with our patients since we received the education from you? Or maybe it’s a coincidence? It’s hard to say. But it’s a good thing! I think the only thing that has changed with my practice is that when I list contraceptive options; I start with the LARCs and work my way down. I used to start with the pills because that’s what most patients are most familiar with.”

**STUDY:**

Did the results match your predictions?
It was predicted that providers would be able to verbalize ways they had contributed to change and that awareness of a positive change would provide motivation to continue to improve. One provider was able to articulate a way she had changed and possibly contributed to the improvement. The other two providers wrote that they did not perceive a need for change and thought the observed change was due to chance.

Compare the result of your test to your previous performance:

What did you learn?
Clinicians continue to need additional intervention to affect change

ACT: Decide to Adopt, Adapt, or Abandon.

☐ Adapt: Improve the change and continue testing plan.
Plans/changes for next test:

☐ Adopt: Continue as is, Assemble data from the second four weeks of the EBPI project and continue to solicit feedback from participants.

☐ Abandon: Discard this change idea and try a different one
Overall team/project aim: Increase percentage of contraceptive prescriptions written for 15-25 year olds that are LARC methods from 6% to 20% over 12 weeks

Overall population: clinic providers           Test population: Same

What is the objective of the test?
The plan was to compile and evaluate data from the second 4 weeks of the EBPI project and present these to participants to generate continuing momentum and possibly increase buy-in for the EBPI project. During data compilation the EBPI project leader realized that clinicians were generating a new DMPA prescription with every injection rather than generating one prescription yearly with refills. Because data was being counted based on the number of prescriptions generated for each method type, this was essentially quadrupling the number of prescriptions for DMPA. The EBPI project leader and the data collector reexamined the numbers, altering the criteria to reflect prescriptions generated during a visit with a clinician only. At this point overall data for the entire EBPI project period was shared with each participant. At the end of cycle 7 participants were once again congratulated for the positive change in prescribing for women aged 15-25 and were asked to complete the LARC project site provider opinion survey (identical to the one given before the initial teaching) in order to evaluate any changes in opinion about LARC methods.

PLAN:
Briefly describe the test:
Continue as above from previous weeks

How will you know that the change is an improvement?
Participants will prescribe more LARC methods

What driver does the change impact?
Provider disclosure and prescribing of LARC methods

What do you predict will happen?
Positive data will increase buy-in.

Plan for change or test: who, what, when, where (use back for more detail)

Share overall EBPI project data with participants and elicit feedback
## PLAN

<table>
<thead>
<tr>
<th>Task Description</th>
<th>Person Responsible</th>
<th>When</th>
<th>Where</th>
</tr>
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<tbody>
<tr>
<td>1. Utilization of toolkit</td>
<td>Providers</td>
<td>5/15/14-5/21/14</td>
<td>clinic</td>
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<td>2. Continue choice project LARC insertion algorithms in prominent locations</td>
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<tr>
<td>3. Increase on-site presence of project coordinator to twice weekly</td>
<td>EBPI project leader</td>
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<tr>
<td>4. Add Reproductive Access algorithms to provider workspace</td>
<td>EBPI project leader</td>
<td>5/21/14-6/2/14</td>
<td>clinic</td>
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<td>5. Give LARC prescribing feedback to providers and pose questions about why change might have occurred.</td>
<td>EBPI project leader</td>
<td>6/9/14-6/15/14</td>
<td>clinic</td>
</tr>
<tr>
<td>6. Train other nurses in LARC counseling</td>
<td>EBPI project leader</td>
<td>June/July 2014</td>
<td>clinic</td>
</tr>
<tr>
<td>7. Share overall project outcomes</td>
<td>EBPI project leader and all participants</td>
<td>July, 2014</td>
<td></td>
</tr>
</tbody>
</table>

Plan for collection of data: *(see Data Collection Plan form)*

Email communication with lead clinician, visit to site. Record prescribing data (collected by nurse)

**DO:** Test the changes.

Was the cycle carried out as planned?
Yes

Record data and observations.

What did you observe that was not part of our plan?
Providers are still not utilizing the written materials. Verbally participants indicate that they perceive themselves already prescribing LARC methods at every opportunity and don’t see a need to increase.

Leadership has not responded to inquiry about EBPI project alteration and continuation.

See above

**STUDY:**
Did the results match your predictions?
Predicted that leadership would be more eager to adapt and continue EBPI project due to funding that is dependent on LARC prescribing numbers and eagerness to be a leader in the public health community. Did not anticipate that funding cuts from other sources would alter staffing during this cycle and going forward thereby distracting the leadership with other issues.

Compare the result of your test to your previous performance:

What did you learn?
Face time is critical to establish the EBPI project, but cannot be part of the sustainability plan. Clinicians will need additional intervention to affect change

**ACT:** Decide to Adopt, Adapt, or Abandon.

- [x] Adapt: Improve the change and continue testing plan. Plans/changes for next test:

- [x] Adopt: Collect final data for dissemination

- [ ] Abandon: Discard this change idea and try a different one
Appendix H

CHOICE LARC Insertion Timing Algorithm

Advanced Practitioner Resources: Provision Guides

<table>
<thead>
<tr>
<th>modification date:</th>
<th>August 1, 2013</th>
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<tbody>
<tr>
<td>content:</td>
<td>LARC Insertion Timing Algorithm</td>
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</table>

Overview
This document describes the algorithm used by CHOICE in determining LARC insertion timing.