A Quality Improvement Project Utilizing an Interactive Decision Tool to Improve Contraceptive Counseling in Primary Care

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Contents

Abstract

Nature and scope of the project: Development and utilization of interactive decision tools may be able to assist in addressing barriers and improving contraceptive counseling rates within primary care settings. This quality improvement (QI) project aimed to give primary care providers (PCPs) an opportunity to review the *My Birth Control* interactive decision tool and evaluate its feasibility as an intervention to improve contraceptive counseling rates compared to their current clinical practices.

Synthesis and analysis of supporting literature: Contraceptive counseling stands to have a powerful influence on a woman's ability to evaluate options, compare methods, and achieve her reproductive goals. The use of interactive tools to initiate patient-provider contraceptive conversations has shown positive outcomes in counseling rates, method adherence, and satisfaction.

Project implementation: Participants in this QI project included PCPs who provided contraceptive counseling services. PCPs were provided a packet containing a pre-tool survey, an informational hand-out on the interactive tool, and a post-tool survey to complete and return to the primary investigator.

Evaluation criteria: Pre-tool surveys were given to participants to determine barriers, occurrence rates, and any current policies of contraceptive counseling in their practice. Post-tool surveys were given to evaluate the PCP's opinion on the interactive tool's feasibility to improving counseling if incorporated into PCP settings and the potential to improve counseling rates, method adherence, and patient satisfaction.

Outcomes: Outcomes were measured using descriptive statistics through Intellectus Statistics Out of 12 surveys handed out, 9 were returned. Thirty three percent of PCP participants would

consider the *My Birth Control* tool as a 'highly feasible' intervention to improve rates of contraceptive counseling compared to their current practice. However, 100% of PCPs expressed that the tool would be an effective intervention if patients had access to it before their appointments for review.

Recommendations: Development of a future QI project utilizing the *My Birth Control* tool among reproductive-age women to evaluate the tool's impact on contraceptive knowledge, method selection, and adherence rates.

A Quality Improvement Project Utilizing an Interactive Decision Tool to Improve Contraceptive Counseling in Primary Care

Contraceptive counseling is to be considered an interactive process between provider and patient, intended to help the patient achieve their reproductive health goals (Zapata et al., 2015). Providing comprehensive contraceptive counseling is an essential and expected proponent of services offered by primary care providers. Reproductive-age women look to primary care providers (PCPs) to provide well-informed, educated guidance when choosing the most effective birth control option to fit their lifestyle. PCPs have expressed a lack of confidence when assisting a patient in deciding on a contraceptive method and ensuring that method will be effective. Recent research and developments in women's health have focused on improving contraceptive counseling, especially in primary care settings. PCPs often have limited appointment time while managing the chronic medical conditions of their reproductive-age female patients, and contraceptive counseling is left incomplete or omitted. Missed opportunities to perform contraceptive counseling during primary care appointments put patients at risk of unintended pregnancies and poor health outcomes.

Problem Identification/Available Knowledge

Primary care providers are often the first point of contact for patients seeking care for various health concerns. PCPs are trained to provide health promotion, disease prevention, counseling services, and care for patients with multiple acute and chronic medical conditions. Although the broad degree of knowledge and training a primary care provider receives to give comprehensive care for a wide array of patient needs, only a small percentage administer contraceptive counseling during clinic visits (Bocanegra et al., 2017). PCPs have difficulty

finding ways to combine contraceptive counseling into appointments that address the treatment of chronic health conditions.

Current research supports the development of interactive decision tool interventions to improve contraceptive counseling rates in primary care settings and employ individualized shared decision-making processes between patient and provider. Interactive contraceptive decision tools have been proven to improve patient involvement, decrease decisional conflict, and increase contraceptive adherence (Wu et al., 2018). This quality improvement project aims to address if primary care providers, given the opportunity to review an interactive contraceptive decision tool, will rate it as a feasible intervention to improve contraceptive counseling rates in clinical practice settings.

Background

The Affordable Care Act (ACA), as well as current clinical practice guidelines, includes contraceptive counseling and access to contraception in women's preventative health services by primary care and encourages coordinated care across specialties to prevent fragmented messages and multiple medical visits (Bocanegra et al., 2017). Despite clinical practice guidelines on women's health services, research has found that contraceptive counseling rates among primary care providers are poor. Limited or incomplete contraceptive counseling practices place patients who receive healthcare from non-gynecological providers at risk of unintended pregnancies and health complications.

Landmark studies by Akers et al. (2010) and Lee et al. (2011) recognized deficiencies in contraceptive counseling in primary care settings. They sought to understand the barriers to poor rates of contraceptive counseling, along with the link between deficient counseling and contraceptive use. In a study of over 700 women, Lee et al. (2011) found women who had

received contraceptive counseling during their PCP appointment had a lowered risk of non-use or misuse of contraception by 80%, which directly linked to contraceptive counseling and improved contraceptive use. Akers et al. (2010) sought to discover perspectives from PCPs on the challenges of contraceptive counseling to begin developing potential strategies to enhance their contraceptive services. Akers et al. (2010) found common themes of perceived barriers/challenges to providing contraceptive counseling in a primary care setting: lack of knowledge, training, and comfort; reliance on patients to initiate discussions; time constraints; and reliance on referrals to subspecialists.

These background studies help identify the problem between contraceptive use adherence and the type of contraceptive counseling by PCPs, along with the why. Poor contraceptive counseling can be associated with the barriers listed by practicing PCPs. Ignoring the problem of inadequate contraceptive counseling delivery within primary care settings will continue to put the health of patients and the outcomes measures of healthcare organizations at risk. The time to find an evidence-based solution that improves rates of contraceptive counseling, while improving patient satisfaction, in clinical settings is now.

Problem Scope

According to the American College of Obstetricians and Gynecologists (ACOG, 2015), 99% of sexually active women in the United States report having used some form of contraception; 87% of those women report using a highly effective birth control method. The Centers for Disease Control (CDC, 2020) lists fourteen different birth control methods categorized as intrauterine devices, hormonal methods, barrier methods, fertility awareness-based methods, lactation amenorrhea methods, emergency contraception methods, and permanent methods. The various contraceptive options can be overwhelming to patients

without proper guidance, and deficient contraceptive knowledge can lead to improper use, risk of discontinuation, and unintended pregnancies.

A primary scope of the problem regarding inadequate contraceptive counseling services in primary care settings is patient and provider challenges or barriers. These are barriers that patients and providers have listed as reasons for improper contraceptive use and ineffective counseling. Carvajal et al. (2016) completed a study exploring women at an underserved urban primary care clinic in Baltimore on what factors influenced their contraceptive decision making and how the PCPs played a role. Predominantly, the women listed the desire to avoid an unintended pregnancy as the driving force behind contraceptive use decisions. Effective communication and trust were listed as the most important aspects of effective counseling regarding confidence in contraceptive choice. Potential barriers included access to care, lack of knowledge on options, unease about side effects, fertility concerns, and family or religious opinions (Carvajal et al., 2016). A majority of the barriers listed by the participants could easily be overcome through education and guidance through contraceptive counseling by their PCP.

Provider barriers to completing contraceptive counseling to women in need have been detailed in systematic reviews and up-to-date research. Numerous barriers causing a gap in care include competing preventative and acute patient health needs, inadequate time to address needs, feeling unprepared or unsure of particular methods, or feelings that these responsibilities fall on specialists (Bocanegra et al., 2017). Aside from these barriers, providers have also listed relying on the patient to initiate discussions on contraception for not routinely performing counseling. Aside from the many barriers highlighting the scope of the problem, how a PCP decides to deliver contraceptive counseling can vary. A variation in the approach to counseling can lead to improper understanding or inconsistent use of birth control methods, again placing women of

reproductive age at risk for unintended pregnancies. Studies observing contraceptive counseling encounters have been documented as most often provider-dominated with minimal engagement between the patient and the provider during method process selection (Dehlendorf et al., 2014). Provider-dominated communication approaches have long been found to create dissatisfaction among patients and do not tailor counseling or method selection to individual patients' needs. Creation of a process change that made contraceptive counseling more direct and efficient while using a shared decision-making approach could provide patients with adequate education and knowledge to choose a method that works for them. When a patient can make an educated decision on their birth control method selection, they have higher rates of contraceptive use and continuation of the selected method (Dehlendorf et al., 2014). Finding a proposed solution that reduces patient and provider barriers and improves delivery of contraceptive counseling serves to increase rates of contraceptive adherence.

Another significant scope of the problem of PCPs not giving comprehensive contraceptive counseling is the risk of leaving the patient without important information regarding contraceptive methods such as how and when to use them, side effects, or medication interactions. The CDC and the U.S. Office of Population Affairs guidelines state that primary care providers should provide contraceptive counseling to help a client choose a method of contraception, explain how to use it correctly and consistently, along with prescribe the selected method or refer the patient to a specialist for long-acting reversible contraception (LARC) options (Gavin et al., 2014). Even with these guidelines, literature reviews show that reproductive-age women who rely solely on a PCP for their healthcare needs receive inadequate contraceptive counseling to support their reproductive needs and goals.

The incidence of reproductive-age women with chronic medical conditions, such as hypertension, obesity, asthma, diabetes, or psychiatric disorders, has risen over the last ten years and comprises over 45% of women seen in primary care (Wu et al., 2018). Women with coexisting medical conditions are often on multiple prescribed medications, some of which include potential teratogenic drugs. An unintended pregnancy could place these women and their fetuses at risk of serious harm.

A study by Fritsche et al. (2011), using the National Ambulatory Medical Care Survey examining over 12,000 outpatient visits, found that a potential teratogenic medication was prescribed at one in every thirteen PCP visits of women aged 14-44. When reviewing these PCP visits, it was found that contraceptive counseling was completed less than 20% of the time (Fritsche et al., 2011). A similar result was noted in Schwarz et al. (2012) study on safe prescribing practices in primary care and found contraceptive counseling occurred in only 28% of visits where a potential teratogenic medication was prescribed. These findings highlighting the rate of contraceptive counseling occurring when potential teratogenic medications are prescribed is frightening and dangerous. PCPs prescribing medications with potential interactions or teratogenic side effects need to address the impacts through contraceptive counseling with their patients.

Problem Consequences

The consequences of inadequate contraceptive counseling by PCPs are unintended pregnancy, potential exposure to teratogenic medications, along with poor health and socioeconomic outcomes. Unintended pregnancies account for half of the 6.1 million pregnancies annually in the United States and are associated with adverse health and economic outcomes for women and children (Office of Disease Prevention and Health Promotion

[ODPHP], 2020). Unintended pregnancies are considered a critical public health crisis in the United States and are associated with significant economical, medical, and social costs and less than suboptimal maternal and child health following birth (Rodriguez et al., 2016). In 2010, over two million births were publicly funded, and the U.S. government expended $21 billion due to unintended pregnancy-related births, abortions, and miscarriages (Sonfield & Kost, 2015).

The consequences of unintended pregnancies place not only the mother at risk of poor health and socioeconomic outcomes, but their children as well. Poor health and socioeconomic outcomes related to unintended pregnancy include delayed prenatal care, preterm birth, depression, low birth weight, higher risk of miscarriage, increased risk for domestic violence, decreased labor force, and increased school dropout rates (Yazdkhasti et al., 2015). The high number of unintended pregnancies can be linked to the nonuse of contraceptives, the use of less effective contraceptive methods, method failure, and inconsistent and incorrect use of methods (Rodriguez et al., 2016). Personalized and efficient contraceptive counseling helps reduce the risk of unintended pregnancy and increases the use of the most effective birth control for that patient.

Women with chronic medical conditions have a higher rate of pregnancy-related complications and death than women who do not (Wu et al., 2018). Hypertension, diabetes, asthma, obesity, hyperlipidemia, and psychiatric conditions are the most prevalent chronic and complex medical conditions among reproductive-age women and their incidence has risen significantly over the last ten years (Wu et al., 2018). Aside from the health-related pregnancy risks, many of these conditions require management with potentially teratogenic medications which could cause increased complications and potential birth defects. Previously mentioned studies have evidenced poor rates of contraceptive counseling among primary care providers

despite discussion and management of chronic conditions and documentation of potential teratogenic medication prescriptions. If women do not receive contraceptive counseling during primary care appointments to prevent these adverse outcomes; exposure to teratogenic medications could lead to potential birth defects or the risk of pregnancy termination may occur (Fristche et al., 2010).

Knowledge Gaps

One of the leading health indicators for Healthy People 2020 is increased access to contraceptive counseling and family planning services to prevent unintended pregnancies (Office of Disease Prevention and Health Promotion [ODPHP], 2020). In 2015-2017, only 60.3% of women aged 20-44 years of age, at risk of unintended pregnancy, were found to be using the most effective or moderately effective birth control methods (ODPHP, 2021). This statistic is important in developing effective strategies to decrease rates of unintended pregnancy and improve contraceptive use. It highlights knowledge gaps among reproductive age women on contraceptive methods and the need to improve rates of reproductive age women who are using the most effective birth control. One of the family planning Healthy People 2030 objectives is to increase the proportion of women at risk for unintended pregnancy who use effective birth control. Research has shown that effective contraceptive counseling can improve method adherence and reduce the risk of unintended pregnancy.

A knowledge gap documented many times in the literature is the lack of training or lack of provider knowledge as a perceived barrier to performing contraceptive counseling services. Although family planning and contraceptive counseling are a part of training for PCPs and they are well equipped to address contraceptive needs of reproductive age women, contraceptive knowledge and lack of training are often attributed barriers to feeling confident in providing

contraceptive counseling (Wu et al., 2018). Addressing the provider's concern as the barrier of lack of knowledge and training on specific methods is incredibly important. The creation of standardized curricula in contraception counseling, adding questions regarding contraception methods to certification examinations, offering CME opportunities, and increasing the availability of electronic counseling resources represent a few proposed solutions to address the knowledge gap (Akers et al., 2010).

Proposed Solution

Studies have found that women who experience higher quality interpersonal care have better contraceptive outcomes. Quality contraceptive counseling stands to have a powerful influence on a woman's ability to evaluate their options, compare methods and achieve their reproductive goals (Dehlendorf et al., 2017). The proposed solution to improve the occurrence of contraceptive counseling in primary care settings is to utilize an interactive decision tool called *My Birth Control.* The *My Birth Control* tool was developed by the University of Southern California's Person-Centered Reproductive Health Care Program (PCRHP) in response to the need for more patient-centered contraceptive counseling (Dehlendorf et al., 2017). This is an interactive decision support tool that was designed to incorporate a shared decision-making approach to contraceptive counseling. The tool's ability to facilitate a shared decision-making approach to contraceptive counseling and address common challenges in contraceptive counseling (i.e. time constraints, provider knowledge gaps, misconceptions about methods).

The *My Birth Control* tool is designed for use on an iPad or other electronic device by the patient before a visit with the provider. Patients go through a series of educational modules and a survey on their preferences for method characteristics which generates recommendations based on their answers (Bixby Center for Global Reproductive Health, 2021). The tool can make

contraceptive counseling in primary care settings more streamlined, direct, effective, and efficient for providers and patients alike.

PICO Question

In a primary care setting, will providers who review the *My Birth Control* interactive decision tool find it to be a feasible intervention to improve contraceptive counseling rates compared to their current clinical practices?

Literature Matrix Table

A comprehensive literature review was performed to examine the background of the problem of poor contraceptive counseling in primary care, conduct a needs assessment, and search for possible implementations, interventions, and measures related to possible solutions to improve contraceptive counseling within primary care settings. Articles from the review of literature were entered into a literature matrix table, located in Appendix A.

Literature Search Process

Databases utilized to complete the literature review consisted of CINAHL, MEDLINE, SOLAR, Cochrane Library, National Institute of Health (NIH), PubMed via Medline, Google, Academic Search Premier and Science Direct. Search terms and Boolean search terms used in this literature review include but are not limited to: contraceptive counseling AND primary care providers, contraceptive decision tools, contraceptive toolkits, contraceptive counseling in primary care, barriers to contraceptive counseling AND primary care, contraception OR contraception AND primary care, rural health AND contraceptive counseling, rural health AND primary care, birth control methods, and shared decision-making tools AND contraceptive counseling. Inclusion criteria for the literature review search included articles less than ten years old, peer-reviewed scholarly articles, and research journals from reputable journals. Exclusion

criteria included articles greater than ten years old and articles completed outside of the United States.

Literature Synthesis

A literature synthesis is included to highlight other important articles to support this quality improvement (QI) project that have not been discussed previously. An increasing number of reproductive-age women with chronic medical conditions are relying on their primary care providers to provide contraceptive counseling services. Manze et al. (2020) conducted in-depth interviews with thirty-nine participants between the ages of 21 to 40 years of age to determine their thoughts on receiving reproductive healthcare services, including contraceptive counseling from primary care settings and how they would prefer their PCP approach their contraceptive needs. Participant responses centered around three common concerns regarding contraceptive services offered in primary care. The participants had concerns regarding provider training and comfort with reproductive health services, insufficient preconception care counseling, and the already limited appointment times (Manze et al., 2020). Participants also expressed a preference for primary care providers to approach contraceptive counseling needs with open-ended questions, inclusiveness, and promotion of reproductive autonomy (Manze et al., 2020). Improving training and knowledge of contraceptive counseling among primary care providers and engaging patients in shared-decision making approaches will impact their comfort and confidence in the services and methods they receive.

The use of shared decision-making tools to initiate and drive patient-provider contraceptive counseling conversations has shown positive outcomes in method adherence and satisfaction among both PCPs and patients. Stulberg et al. (2019) implemented a clinical decision support tool called One Key Question ® into the electronic medical record (EMR) to facilitate an

assessment of the patient's reproductive goals and found a statistically significant increase (52% vs. 76%) in contraceptive counseling provided during primary care provider appointments. Holt et al. (2019) utilized a shared decision-making clinical tool, *My Birth Control,* by giving patients access to the tool on an iPad before their appointment with their PCP. Patients were provided information on contraceptive method options and completed five interactive modules to guide them in choosing methods of contraception of most interest to them. The PCPs were then provided with a printout of the patient's preferences, medical conditions, and noted patient questions. A survey of patients and providers who used the tool felt that it improved patient-centered communication during contraceptive counseling, was manageable with time constraints, and led to more informed choices regarding contraceptive use (Holt et al., 2019). Evidence-based use of clinical tools has shown positive results in improving contraceptive counseling rates and satisfaction. It is proposed that the utilization of a shared decision-making tool to provide contraceptive counseling among reproductive-age women by primary care providers will improve informed method selection, adherence to birth control methods, and provider-patient satisfaction.

Organizational Project Information

This QI project was created to expose primary care providers to one of the interactive decision tools designed to improve contraceptive counseling rates in primary care settings. The intervention implementation explored a potential process change idea to the delivery of contraceptive counseling within primary care settings. This QI project was intended to include primary care providers from various healthcare organizations within the surrounding community.

Setting

Due to the participant population of the QI project being affiliated with multiple different local and regional healthcare organizations within Minnesota and North Dakota, the project utilized a supporting site. The supporting site for this QI project was an independent, private college within the state of Minnesota that offers many graduate and undergraduate degree programs. The college acted as the project setting liaison responsible for supporting the development, implementation, and evaluation of the project. Data obtained from the project was analyzed and presented through the college, available to healthcare providers and healthcare organizations that were seeking information on the use of interactive decision tools to improve contraceptive counseling.

Participants

Project participants were healthcare professionals who delivered care and contraceptive counseling services to women of reproductive ages. The healthcare professionals recruited for project participants include medical doctors, physician assistants, and nurse practitioners. Participation was voluntary. Inclusion criteria were any healthcare provider who practices primary care and delivered contraceptive services to reproductive-age women. Exclusion criteria include healthcare providers that did not deliver contraceptive counseling or treat women of reproductive age.

Stakeholders

Primary stakeholders for this project included medical doctors, nurse practitioners or physician assistants that provided contraceptive counseling to women; healthcare organizations looking to improve the provision of these services; hospital and clinic management/facility directors; and reproductive-age women. Secondary stakeholders included men, women, and

children within the community and future patients of these healthcare providers receiving contraceptive counseling.

Gap Analysis

Due to the adoption and endorsement of contraceptive quality measures by the Office of Population Affairs and the National Quality Forum in 2017, a need to disseminate and implement evidence-based interventions to meet these quality measures and improve reproductive health is critical (Wu et al., 2018). During the initial planning phase of this QI project, a review of current contraceptive counseling practice guidelines and policies of a large-scale local healthcare organization with many small primary care clinics located with Minnesota and North Dakota was completed. The review found no current practice guidelines or policies regarding contraceptive counseling delivery methods by providers. Each primary care provider utilized their own counseling method when discussing contraceptive methods and assisting patients with decisions regarding reproductive health.

When discussing the practice of contraceptive counseling, one primary care nurse practitioner noted “The only real practice standard in regard to contraceptive counseling is to ensure a negative pregnancy test prior to prescribing any type of contraceptive method. There are no guidelines or policies as to how contraceptive counseling should be completed to ensure we are meeting quality measures” (personal communication, January 10, 2022). The delivery of healthcare is driven by evidence-based practice models which lead to practice guidelines and care processes. The lack of standardized processes and practice guidelines for contraceptive counseling delivery could be the gap between improving contraceptive counseling rates and patient adherence to contraception.

Needs Assessment

Lack of resources and specialty services in rural locations including access to obstetrician and gynecological (OB/GYN) specialties are often limited and contraceptive counseling may only ever occur in primary care environments for some patients (Worthington et al., 2020). According to the United States Census Bureau (2017), about 60 million or one in five Americans, live in rural areas. Primary Care Provider roles in rural areas are essential for promoting contraceptive counseling and reproductive health care due to potential scarce health-related resources and potential unmet needs for specialty services in the community (Chuang et al., 2012). There is a need for improved contraceptive counseling in rural areas with primary care providers that serve reproductive-age women and face a gap in specialty providers.

This QI project initially planned to utilize an organization in Minnesota that serves many small and rural towns through family practice clinics. A needs assessment was completed on the value an interactive decision tool to standardize the process of contraceptive counseling in primary care settings in Minnesota. Minnesota is a state that currently serves a large rural population. An estimated 1.2 million residents of Minnesota live in rural areas in 2019 (Rural Health Information Hub, 2019). Thirty seven percent (266 of 713) of all primary care clinics in Minnesota are located in rural areas and serve the residents that live there (Minnesota Department of Health [MNDOH], 2019). According to the Minnesota Department of Health (2019) there are 34.2 family medicine providers per 100,000 people and only 5.9 obstetric/ gynecology providers per 100,000 people in rural areas of the state. Access to OB/GYN services is limited for women of reproductive age that live in rural areas of Minnesota. Currently there are no practice guidelines or standardized policies surrounding contraceptive counseling delivery within the larger healthcare organizations that serves many rural clinic locations within Minnesota. This QI project attempted to expose PCPs to an interactive decision tool developed to

improve contraceptive counseling and increase awareness of the available resources for providers and their patients.

Guiding Theoretical Framework

Theories help predict behavior and guide investigators to link relationships to a specific behavior with specific events or proposed interventions. Choosing the right theoretical framework is important in providing guidance and support for project development and implementation quality improvement. The theory of planned behavior (TPB) is a theoretical framework that supports the implementation of an interactive decision tool to improve primary care providers' contraceptive counseling practice. The theory of planned behavior is a behavioral change theory. In the past few decades, the TPB has become a framework for explaining and predicting behaviors, along with the framework for designing and evaluating behavior change interventions (Ajzen & Schmidt, 2020). The theory developed by Ajzen (1991) explains that the main drive for behavior is the intention to perform a behavior under specific motivational variables, such as attitude, beliefs, perceived control, and outside influences. The TPB has been used to help predict, explain, and design behavior change interventions.

The TPB often works as the theoretical framework for behavior change interventions involving education, persuasion, motivation, training, goal setting, or incentives to predict outcomes. In recent years, the use of TPB-based behavior change interventions has grown due to its ability to predict intentions and behaviors across various behavioral domains (Steinmetz et al., 2016). TPB-based interventions are classified into eight behavioral domains: alcohol/drug use, compliance to medical care, hygiene, nutrition, physical activity, sexual behavior, traffic, and work/school behavior (Steinmetz et al., 2016). Research or quality improvement projects often

involving a behavior change intervention in one of the eight domains often utilize the TPB to predict behavior and outcomes.

Theory Application to Project

Sexual behavior is classified as one of the eight behavioral domains of the theory of planned behavior. Studies using the TPB for sexual behavior and sexual health interventions often include safe sex practices and contraceptive use (Steinmetz et al., 2016). This QI project aims to increase contraceptive counseling rates and fit into the sexual behavior domain of the TPB. The behavior change intervention involves increasing the occurrence of contraceptive counseling in primary care settings using an interactive decision tool. The intervention applies educational, training, and motivational methods to promote behavior changes. The TPB predicts that motivation to carry out health behaviors, such as taking birth control or practicing safe sex, are related to motivation, intention, and ability/perceived behavior control to perform that behavior (Carvajal et al., 2016). Improving contraceptive counseling rates by utilizing an interactive decision tool by PCPs will provide patients with education, training, and motivation to take control of their sexual health behaviors. Application of the TPB to this QI project, the predicted outcome is that using a shared decision-making tool to contraceptive counseling in primary care settings, patients and providers will have an increase in their perceived behavioral control regarding sexual behavior.

Aims, Goals, and Objectives Clarified

Project Goal and SMART Objectives

The overall goal of this QI project was to provide primary care providers with an opportunity to review an interactive decision tool designed to improve contraceptive counseling rates and improve shared decision-making opportunities with their female patients of

reproductive age. This QI project was designed to expose PCPs to the interactive decision tool resource and explore a potential process change in the delivery of contraceptive counseling in primary care settings to improve patient and community health outcomes.

Objective One

The pre-tool survey, the post-tool survey, and the *My Birth Control* Tool educational hand-out for participating primary care providers will be completed by the end of December 2021 for submission to the Institutional Review Board (IRB).

Implementation. To evaluate how the participants feel about contraceptive counseling before and after they review the interactive decision tool, a pre-tool survey, an informational hand-out detailing the QI project and access to the tool, and a post-tool intervention will need to be created. To meet this objective, the surveys and informational handouts for participants must be created and approved by Dr. Mary Larson, project mentor and project chair. Once the surveys and hand-outs receive approval, they can be attached to the IRB application for submission and review by the IRB.

Outcome Measures. This outcome will be measured by the dates of approval by Dr. Larson and attachment to the IRB application through IRB.net. The outcome will be considered successful if the participant surveys and handouts are able to be created, approved, and attached to the IRB application before the end of December 2021.

Objective Two

By the end of January 2022, a minimum of 12 healthcare providers (MDs, NPs, or PAs) will have agreed to participate in this quality improvement project to review the *My Birth Control* tool for improving contraceptive counseling.

Implementation. To implement this objective, a list of potential participants will be created. Potential participants include medical doctors, nurse practitioners, and physician's assistants, who are employed by a healthcare organization, and who specialize in primary care and treat women of reproductive ages. The principal investigator will contact each potential participant through an in-person or telephone interaction. Contact information and preferred delivery of surveys/handout will be collected from each participant after they have verbally committed to the project.

Outcome Measures. This objective will be considered successful if a minimum of twelve participants volunteer to participate in the study and provide their contact information by the end of January 2021. There will be no maximum number of participants who volunteer to participate in the project.

Objective Three

By the end of March 2022, one hundred percent of healthcare providers that agreed to participate in this quality improvement project will complete the pre-tool survey, review the tool, and post-tool survey and return them to the principal investigator for data collection.

Implementation. Once surveys and the informational hand-out materials have been disseminated to participants per their preferred delivery method, the principal investigator will follow up with them in two weeks to evaluate if they have been able to review the tool and complete the surveys. Surveys will either be collected in person or via email, depending on how the participant preferred the project materials be sent to them. If the participants were unable to complete the tool review and surveys after two weeks, they will be contacted and followed up with again in another two weeks. Participants will be given a deadline of March 18th, 2022, to ensure that surveys will be returned by the end of March to meet the objective goal.

Outcome Measures. The outcomes of this objective will be measured by the number of collected surveys returned by the end of March 2022. The outcomes will be considered successful if all the surveys from all participants have been returned by the deadline to achieve the end of March 2022 goal.

Objective Four

Ninety percent of providers participating in this quality improvement project will choose "extremely feasible" on the five-point Likert scale question regarding their views on if the tool could be seen as feasible intervention to improve contraceptive counseling rates on their post-tool surveys.

Implementation. The participant surveys will consist of a set of seven questions each. Two open-ended response questions and five Likert scale questions. The Likert scale questions will contain a five-point Likert scale answer. Of the seven questions on the post-tool survey one question will state, 'In your opinion, after reviewing the *My Birth Control* tool, would you consider it a feasible intervention to improve contraceptive counseling rates in primary care settings compared to current clinical practices?'.

Outcome Measures. Surveys will be collected, and answers will be entered into an excel spreadsheet for data collection. Qualitative and quantitative data analysis will occur from the survey responses given by each participant. The five-point Likert scale questions will be entered into a bar chart to visualize the data and obtain percentages of each answer. The post-tool survey question regarding the feasibility of the intervention to increase contraceptive counseling rates Likert scale responses will be placed into a bar chart and percentages of each answer will be calculated. The objective will be considered successful if 90% of participants rate the tool as "highly feasible" to be implemented into contraceptive counseling practices.

Work Plan Timeline

The work plan timeline estimated this QI project to be completed in May of 2022. This project required voluntary participation from selected primary care providers. The main coordinator of this project was the principal investigator, with support from the project chair, and was responsible for carrying out and adhering to the work plan. The work plan timeline lists important events to the QI project such as IRB approval, participant recruitment, completion of project materials, gathering of completed surveys, data analysis, and project presentation. A work plan timeline highlighting important events and deadlines to ensure completion of the project can be found at the end of this document in Appendix B, Table1.

Logic Model

A logic model is a graphic image that represents the shared relationships between project activities and the intended effects (CDC, 2021). A logic model looks at assumptions, inputs, activities, outputs, immediate outcomes, and long-term outcomes of this project. A logic model was developed for this QI project and can be reviewed in Appendix B, Table 2.

Budget

The budget and costs to implement this project were minimal. The project costs included office supplies for printing of the survey and informational hand-outs and manila envelopes to deliver materials to the participants.

Methodology and Analysis

The QI project methodology involved pre-implementation, implementation, and post-implementation phases. Each portion of the methodology was necessary to ensure completion and success of this quality improvement project and serves as a road map if there were a desire to replicate it in the future in other settings.

Pre-implementation of the QI project involved development of an informational handout regarding the use of interactive decision tools in contraceptive counseling and the *My Birth Control* tool intervention. It also included development of pre-tool surveys and post-tools surveys to be completed by participants. Pre-implementation also included submission to the Institutional Review Board (IRB) for project approval. Once IRB approval was granted, implementation of the project was able to begin.

The implementation portion of the project involved recruiting voluntary primary care providers who were willing to participate and the dissemination of the project information and survey materials to the participants. All participants were informed of the project purpose, goals, and objectives prior to being asked about their willingness to participate. PCPs were asked to complete the surveys in order and return to the principal investigator as able.

Post-implementation requires collecting of the surveys and entering them into Excel and Intellectus statistical software for data analysis. During the post-implementation phase, qualitative and descriptive statistics was used to determine if the objectives of the QI were met.

IRB/Ethical Considerations: Protection of Human Subjects

IRB and ethical considerations began with ensuring that this was a quality improvement project and not research. This project was considered a quality improvement project and does not meet the definition of a research project as defined by the United States Department of Health and Human Services (HHS) under the "common rule" or the common rule regulation 45 CFR 46 because it is not a systematic investigation designed to develop or contribute to generalizable knowledge (US Department of Health of Human Services [HHS], 2021).

Participants were considered eligible for participation if they were currently practicing as an MD, NP, or PA in a primary care setting and provide contraceptive counseling services to

reproductive age women. The healthcare providers who volunteered to participate in the QI project were not considered vulnerable in accordance with the Department of Health and Human Services (HHS, 2021) 45 CFR 46 regulations. Participation in this QI project was voluntary and to ensure the safety of each participant, no personal or private information was collected. All surveys and other documents were shredded after data was gathered. This quality improvement project adhered to the American Nurses Association (ANA, 2015) Code of Ethics. This quality improvement project was not funded and there was no direct benefit to participants. There were no violations of normal expectations of daily life or any expected physical, psychological, or social risks/ discomfort to participants partaking in this project.

Implementation

The project implementation phase began once IRB approval was granted. PCPs who currently worked in primary care settings and provide contraceptive counseling were recruited for participation. A total of twelve primary care providers volunteered to participate. Once participants agreed to participate in the QI project, they were provided with all the necessary information and materials needed to complete their portion of the project. The project implementation materials provided to the participants include an informational handout containing details on the project purpose, goals, and objectives with access to the *My Birth Control* tool intervention, a pre-tool survey, and a post-tool survey. The informational handout and participant surveys can be viewed in Appendix C.

Seven participants preferred to receive their materials in person and were provided with a manila envelope containing the informational handout and pre-/post- tool surveys. Five participants preferred email communication and received their project materials via a Microsoft Word document email attachment.

Once participants completed the pre-tool survey, reviewed the *My Birth Control* tool intervention, and post- tool survey, they were returned to the principal investigator for data collection. Both the pre-tool survey and the post-tool survey contained seven questions in total. Five were 5-point Likert scale questions and two questions were open-ended questions to allow participants to answer openly, without predefined choices. The pre-tool survey focused on the PCPs current contraceptive counseling practices and organizational policies. The post-tool survey focused on the *My Birth Contro*l tool intervention and the tool's potential to improve contraceptive counseling rates, ease of use, and the feasibility to incorporate the tool into practice. Returned survey results were kept organized by individual pre-tool and post-tool Excel Spreadsheet documents to be entered for data analysis in Intellectus Statistics.

Results from Data Collection

Twelve primary care providers volunteered to participate in the QI project and complete surveys. Only nine out of the twelve participants returned their surveys by the requested deadline to ensure timely data analysis. The 5- point Likert scale questions were organized by participant response and entered in Intellectus Statistics for data analysis. Descriptive statistics were used to obtain the percentage of participant response to each question and placed into bar charts. Open ended questions were reviewed for common themes. Any significant themes to each open-ended question from the pre-tool survey and the post-tool survey were identified and organized per each question.

Pre-tool Survey Results

Results from the pre-tool survey regarding contraceptive counseling practices and opinions as primary care providers were collected and analyzed using descriptive and qualitative statistical analysis. Participants were asked to list their perceived barriers to performing

comprehensive contraceptive counseling in primary care settings via an open-ended question. Common themes listed by the PCP regarding perceived barriers to contraceptive counseling were limited time during appointments, lack of training on certain methods, and patient or provider misbeliefs of contraception. Time constraint was listed by seven out of the nine (78%) PCPs as a barrier to contraceptive counseling. Lack of training on particular contraceptive methods was listed by six of the nine (67%) providers as a barrier and misbeliefs or misconceptions of contraception were listed by five of the nine (56%) providers. Similarly, a common theme emerged from the second open-ended question of the pre-tool survey regarding the currently contraceptive counseling practices or process required of each PCPs healthcare organization of employment. All nine participants (100%) reported there were no known policy or practice requirements within their healthcare organizations for contraceptive counseling delivery.

A 5-point Likert scale questions asking participants, 'How often do you initiate conversations regarding contraception?' revealed that 22% or participants reported always initiating the conversation and 66% reported relying on participants to initiate conversations regarding contraception half of the time. Pre-tool question five asked, 'Do you feel that you have been provided with the adequate tools and training to provide contraceptive counseling to women in the primary care setting?' and 44% of participants marked 'expert training' on the 5-point Likert based scale. Notably, 44% of participants reported that they performed contraceptive counseling and 44% reported performing counseling only half of the time or less, when prescribing teratogenic medications via a 5-point Likert scale on pre-tool question six. Over 66% of participants stated that they would be 'interested' or 'extremely interested' in using an interactive decision tool that made contraceptive counseling easier for them or their patients during appointments that wouldn't interfere with appointment times.

Post-Tool Survey

Post-tool survey results regarding use and feasibility of utilizing My Birth Control interactive decision tool were collected and analyzed using descriptive themes and qualitative statistical analysis. Significant findings from the post-tool survey were noted and discussed. Question one and Question two on the post-tool survey were open-ended questions that asked participants if they felt they learned anything new about contraception or specific methods after utilizing the *My Birth Control* Tool and 'to describe their thoughts on how the *My Birth Control* tool could reduce barriers to contraceptive counseling in primary care settings'. These questions were reviewed for common themes to participant answers that are significant to the *My Birth Control* tool intervention.

In question one, zero participants reported learning something new while utilizing the tool on contraception or specific methods. However, 100% (n=9) of participants commented in question two that the interactive decision tool would be effective at reducing barriers to contraceptive counseling in primary care if the tool could be given to patients to complete prior to their appointment for the patient and provider to review together.

There were also common themes noted as to why 100% of the PCPs believed the tool to be an effective tool to reduce counseling barriers if the patient was able to access it and complete it prior to their appointments. These themes include: the tool simplicity of use (44%, n=4), the visual material is helpful for the patient (56%, n=5), and the tool would empower patients who are too nervous or less comfortable to ask certain questions regarding contraception with an opportunity to feel more comfortable prior to their appointment (67%, n=6) .

Post-tool question three addressed the QI project PICO question on feasibility of the tool in practice. Participants were asked, 'After reviewing the *My Birth Control* tool, would you

consider it a feasible intervention to improve contraceptive counseling rates in primary care compared to current clinical practices?' and responded via a 5-point Likert scale. 33% of participants rated the tool as 'extremely feasible' and 22% rated it as a 'likely feasible' intervention to improve contraceptive counseling compared to their current practices. This is represented via a bar graph and can be viewed in Appendix D.

The post-tool question four asked participants if they felt that the pre-counseling education modules and method preference survey within the *My Birth Control* tool could lead to increased adherence rates and decrease the risk of unintended pregnancy among reproductive age women. Through a 5-point Likert scale response, 77% (n=7) of the participants felt that the tool could improve contraceptive adherence and lead to a decreased risk of unintended pregnancy. Participants were also asked, 'How would you rate the *My Birth Control* tool's ability to improve patient satisfaction by incorporating a shared decision-making approach to counseling'. Responses were again measured via a 5-point Likert scale and over 67% (n=7) felt that the tool was 'very likely to improve' patient satisfaction regarding contraceptive counseling.

Discussion of Data

Due to the insufficient sample size and poor survey return, project outcomes were unable to be met. Only 33% of the PCP participants felt that the *My Birth Control* tool was an 'extremely feasible' intervention to improve contraceptive counseling rates compared to current clinical practices. However, 100% of PCPs felt that the tool could reduce barriers to contraceptive counseling in primary care settings if the patients were able to have access to the tool prior to their appointment for the patient and provider to review together.

Recommendations for future projects includes the reproduction of a similar QI project using the *My Birth Control* tool intervention with reproductive-age women who are currently

using or looking to begin using contraception and see a primary care provider. Pre- and post- tool intervention surveys would evaluate participant knowledge on contraception, current contraceptive method selections and method adherence, and their personal experiences with contraceptive counseling in primary care. Utilization of the tool with reproductive-age women would help evaluate the effectiveness of the tool's ability to provide education, increase method adherence, and decrease their personal risks of unintended pregnancy. Considerations for future projects using the *My Birth Control* tool will help to evaluate the impact of the tool on contraceptive counseling in primary care settings through various implementation strategies. These projects will help guide primary care providers when considering a process change in their practice of contraceptive counseling and healthcare organizations considering the implementation of this tool to increase shared decision making opportunities and improve patient satisfaction.

Dissemination

Dissemination of the project outcome and data analysis results was completed through discussion with primary care providers working at a Family Medicine clinic in northwestern Minnesota. PCPs within the clinic organization were shown the bar graph data from the pre-tool surveys and the post-tool surveys, along with the completed QI project poster.

The results and outcomes of the QI project were also disseminated among students and faculty administrators within the graduate nursing department of the College of St. Scholastica through the DNP poster presentation symposium and open discussions via peer reviews. This QI project will also be submitted to the Doctoral Project Repository for dissemination to others who may have interest in this project or projects regarding contraceptive counseling rates in primary care and interactive decision tools.

Conclusion

Research has found that deficient contraceptive counseling during primary care visits leads to poor adherence, insufficient knowledge regarding contraceptive methods, and potential for unintended pregnancy among reproductive-age women. Development and utilization of shared decision-making contraceptive counseling tools have shown to increase contraceptive counseling rates in primary care and improve patient satisfaction. This quality improvement project introduced primary care providers to the *My Birth Control* tool for review. It provided them with an opportunity to utilize the tool and evaluate its potential to improve rates of contraceptive counseling.

Although the project outcomes were not statistically significant and the outcomes were unable to be met, the participants did find value in the *My Birth Control* tool. All providers who reviewed the tool, expressed the potential value if it was available for patients to have access to it prior to their appointment. This finding leads to ideas for future QI projects utilizing the *My Birth Control* tool and its effectiveness at improving contraceptive counseling in primary care settings. This QI project is the start of exploring a possible process change to the delivery of contraceptive counseling in primary care to improve provider knowledge, confidence, and rates of delivery.

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Appendix A

Reference	Purpose/Question	Design	Sample	Intervention	Results	Notes
Akers, A.Y., Gold, M.A., Borrero, S., Santucci, A., & Schwarz, E.B. (2010). Providers' perspectives on challenges to contraceptive counseling in primary care settings. *Journal of Women's Health, 19(6)*, 1163-1170. 10.1089=jwh.2009.1735 USA Level of Evidence VI (Using hierarchy of evidence from Melynk & Fineout-Overholt, 2015)	To explore opinions and barriers to contraceptive counseling among providers in primary care settings. The researchers hoped that by understanding the opinions and barriers to contraceptive counseling in the primary care setting would assist in strategies to improve contraceptive counseling on a larger scale.	Qualitative study. Stratified sampling.	The study included eight focus groups with 48 providers from four academic and community based primary care practices. Eligible providers worked in large, urban area clinics that provided outpatient primary care services for reproductive age women.	The intervention included eight focus groups with 6-10 study participants in each group. Each group lasted approximately two hours. Each group had two moderators. Moderators used a standardized, semi structured interview guide that was developed using a conceptualized framework that explored primary care clinicians' perceived knowledge, self-efficacy, barriers/facilitators, and personal role in contraceptive counseling.	Six themes were found regarding provider perceived barriers to contraceptive counseling. The six barrier themes were: pregnancy risk classification; lack of knowledge, training, or comfort; beliefs about certain methods; perceived patient responsibility for initiating discussions; need for skilled personnel for certain methods; and lack of communication with subspecialists. Providers also described system-lebel challenges to contraceptive counseling such as lack of insurance coverage, lack of time and need to address other medical priorities during appointments.	Older journal article (2010) but it begins the process of examining barriers and challenges of contraceptive counseling by primary care clinicians. It is a good beginning piece to help understand the scope of the problem.

Carvajal, D.N., Gioia, D., Mudafort, E.R., Brown, P.B., & Barnet, B. (2016). How can primary care physicians best support contraceptive decision making? A qualitative study exploring the perspectives of Baltimore latinas. Women's Health Issues Journal, 27(2), 158-166. http://dx.doi.org/10.1016/j.whi.2016.09.015 USA Level of Evidence VI (Using hierarchy of evidence from Melynk & Fineout-Overholt, 2015)	The purpose of this qualitative study is to use the theory of planned behavior as a guide to help describe how Latina's perspectives on specific factors that influence their contraceptive decision making and describe their perspectives on the role of primary care providers in their decision making. Carvajal et al. (2016) chose Lantinas as the study population due to their disproportionately high rates of unintended pregnancy and low rates of consistent contraceptive use.	Qualitative study. Purposive sampling method	Participants were recruited from two federally qualified health centers that provide primary care to a majority low-income pop. of minority patients. All participants were female, self-identified as latina, were between the ages 15 to 24 y.o., and were not pregnant or intending to become pregnant. Sixteen total participants were enrolled in the final study sample.	The study intervention included focus groups and private interviews. There were three focus groups and eight individual interviews. Each participant attended only one focus group or one interview. Focus groups lasted 60 minutes and individual interviews lasted 30-45 minutes. The discussion guide concentrated on identifying factors associated with contraceptive use or lack of use and explored the role of PCPs in facilitating decision making. Questions were guided by the theory of planned behavior; however questions were not.	Four central themes arose from the interview/group discussions. Theme 1: The desire to avoid unintended pregnancy is dominant and is the main driver of contraceptive use. Theme 2: Latinas want strong relationships with their PCPs regarding contraception decision making. Theme 3: PCPs should develop trust and foster communication consistent with a shared decision making approach in contraceptive counseling. Theme 4: Religious ideologies and community norms rarely operate as barriers to contraceptive use. ** Other barriers to contraceptive use included access to care. Lack of knowledge about contraception, unease about side effects, fertility concerns, emphasis on family, and male partner domination.	Theory of planned behavior Shared Decision making.

Chuang, C.H., Hwang, S.W., McCall-Hosenfeld, J.S., Rosenwasser, L., Hillemeier, M.M., & Weisman, C.S. (2012). Primary care physicians' perceptions of barriers to preventive reproductive health care in rural communities. Perspectives on sexual and reproductive health, 44(2), 78-83. 10.1363/4407812 USA Level of Evidence VI (Using hierarchy of evidence from Melynk & Fineout-Overholt, 2015)	The purpose of this article is to explore rural primary care providers practices regarding preventative reproductive health services and their perceptions of unmet needs for such services in their community.	Qualitative study. Purposive sample.	The sample included 19 primary care physicians working in rural areas across Pennsylvania that deliver care to adult women. 12 participants were trained in family practice, 5 in internal medicine, and one in OB/GYN. Ten males and nine females	The 19 physicians were interviewed by two separate interviewers in person at the physician's office or by telephone. Each participant was asked questions about four main topic areas - cancer screening, preventative reproductive health, intimate partner violence, and mental health - with focus of their answers being on their own personal experiences providing care to adult rural women.	The participant physicians felt they had a greater role in providing contraceptive counseling than nonrural physicians and that contraceptive options were accessible to patients within their community. It was found that most physicians did not routinely initiate preconception counseling to patients. Physicians perceived rural community norms (unintended pregnancy, large families, indifference toward career and educational goals for women as the biggest barriers to contraceptive counseling. Found that reproductive health care in rural areas may be lacking due contraceptive care is not a priority vs that is inaccessible to rural women.	"Because of a shortage of OB/GYN in rural areas, rural PCPs may assume a greater role in preconception care".

Dehlendorf, C., Reed, R., Fitzpatrick, J., Kuppermann, M., Steinauer, J., & Kimport, K. (2019). A mixed-methods study of provider perspectives on *My Birth Control*: A contraceptive decision support tool designed to facilitate shared decision making. *Contraception, 100*, 420-423. https://doi.org/10.1016/j.contraception.2019.08.001 USA Level of Evidence II (Using hierarchy of evidence from Melynk & Fineout-Overholt, 2015)	To examine whether providers using *My Birth Control* clinical tool felt that it impacted their counseling, whether it was acceptable and feasible for use in the clinic setting, and whether they perceived any negative effects or had concerns.	Clustered Randomized controlled trial.	Four safety net clinics in San Francisco were the location of the trial. 28 provider participants were included in the study. 15 of those providers were placed into the intervention group. Patient eligibility included: female sex, 15-45 years of age, were not pregnant or desiring pregnancy within 7 months of enrollment, and wanted to discuss starting or switching a contraceptive method with one of the study providers.	All provider participants completed a survey about demographic questions and the Maslach Burnout Inventory (MBI) to assess provider burnout. 15 participants were then placed into the intervention group and received a 30 min orientation on *My Birth Control* tool. Total patient visit time and time the provider spent with the patient directly was measured by research staff. The Intervention group participated in semi structured interviews after completion of the trial to examine experiences with the clinical decision tool.	Providers in the intervention group reported that *My Birth Control* helps them allocate more time and enable them to focus on the patients' areas of interest. All providers found the tool as acceptable, feasible, and indicated that they would incorporate it into their practices. No difference in burnout scores before and after the trial of using *My Birth Control*	

Dehlendorf, C., Kimport, K., Levy, K., & Steinauer, J. (2014). Qualitative analysis of approaches to contraceptive counseling. Perspectives on Sexual and Reproductive Health, 46(4), 233-240. 10.1363/46e2114 USA Level of Evidence VI (Using hierarchy of evidence from Melynk & Fineout-Overholt, 2015)	To assess various provider approaches to contraceptive counseling and patterns in their use.	Qualitative analysis	The study included 342 women, 42 providers at six family planning, primary care, and general gynecology clinics in the San Francisco area. Inclusion criteria: Clinics that were serving a diverse population of patients, had NPs, PAs, CNM, or MDs conducting the contraceptive counseling. Patients had to speak English, wish to initiate contraception, and identify as black, white, or Latina. Only 50 sessions were used and only 25 providers were represented in the study.	The intervention included a subset of audio recordings collected between Aug. 2009 and Jan 2012 of patients during their contraceptive counseling appointment. Out of the 342 recordings, only 50 were chosen to be analyzed for the research. Data analyzed included methods of counseling selection - including frequency and mode of administration, side effects and efficacy. Prevalence of counseling method use was identified in the overall sample in relation to the patient demographic characteristics.	Three primary approaches were identified that providers took to counseling women on contraception: Foreclosed (48%), informed choice (30%), and shared decision making(22%). Age was the only patient characteristic that showed a pattern regarding counseling approaches	16 providers were APRNs 12 providers used different approaches with different patients. Grounded Theory

Fristche, M.D., Ables, A.Z., & Bendyk, H. (2011). Opportunities missed: Improving the rate of contraceptive counseling or provision when prescribing reproductive aged women potentially teratogenic medications in a family medicine resident clinic. *Contraception, 84*, 372-376. 10.1016/j.contraception.2011.01.02 USA	The purpose of this study was into increase attentiveness among primary care residency training programs to consider the risks of teratogenic medications and the need for adequate and comprehensive contraceptive counseling.	Retrospecti ve chart review	EMR chart inclusion criteria: Female sex, age 15-44 years, and prescriptive encounters. Participants were primary care residents at Spartanburg Regional Healthcare System in Spartanburg, SC. 182 charts met inclusion criteria for phase one and 199 different encounter charts met inclusion criteria in phase 3.	Phase 1: A retrospective chart review was completed using the EMR to locate the charts of women of reproductive ages taking select FDA class D and X medications frequently prescribed in primary care. Phase 2:educational interventions were held to raise awareness of teratogenic medication risks, along with EMR documentation tool for 'quick text' of contraceptive counseling charting. Phase 3: Follow up review to assess effectiveness of the interventions with the same methods as in phase one chart review.	The initial rate of documented counseling of teratogenic medication and contraceptive counseling among primary care residents improved from 46% to 80% following the intervention. The improvement of the overall rate of contraception counseling was found to be statistically significant. No statistically significant correlation in either phase comparing counseling rates for specific medications, medication classes, age of patient or type of contraception was found.	Older article, however it is an example of the importance of contraceptive and preconception counseling by providers to their patients.

Holt, K., Kimport, K., Kuppermann, M., Fitzpatrick, J., Steinauer, J., & Dehlendorf. (2020). Patient-provider communication before and after implementation of the contraceptive decision support tool *My Birth Control*. *Journal of Patient Education and Counseling, 103*, 315-320. https://doi.org/10.1016/j.pec.2019.09.003 USA Level of Evidence II (Using hierarchy of evidence from Melynk & Fineout-Overholt, 2015)	The purpose of this study is to compare the differences in patient - provider communication among patients who, prior to contraceptive counseling, used or did not use the *My Birth Control* decision support tool.	Randomized control trial	The study utilized 70 audio recordings of counseling visits by 15 providers from four San Francisco safety net clinics. 31 recordings were pre-tool implementation and 39 recordings were post tool implementation.	Audio recordings of patient and provider interactions during contraceptive counseling visits were collected. Providers were randomized to have their patients begin using the *My Birth Control* clinical tool prior to their counseling session or continue care as usual without the tool. Patterns were summarized and described in the counseling sessions before and after tool implementation.	Results found that without the tool, most providers began by asking participants what method they were considering and counseled based on that or suggested a LARC. With the clinical decision tool - providers focused on reviewing and discussing multiple methods as indicated by the patient. Many physician and patient participants stated that they gained knowledge from the tool.	

Manze, M.G., Romero, D.R., Sumberg, A., Gagnon, M., Roberts, L., & Jones, H. (2020). Women's perspectives on reproductive health services in primary care. *Family Medicine, 52(2)*, 112-119. 10.22454/FamMed.2020.492002 USA Level of Evidence VI (Using hierarchy of evidence from Melynk & Fineout-Overholt, 2015)	The purpose of this article is to understand patient perspectives receiving reproductive health (RH) services from primary care providers and how women may want a PCP to discuss pregnancy intentions and reproductive health needs with them.	Purposeful stratified sampling and Qualitative data analysis.	Participants included a total of 39 women aged 21 - 40 years old from two New York City Neighborhoods. Inclusion criteria: Female, age 21-40 years of age, live in the recruitment area.	Four focus group interviews and 18 in-depth interviews were conducted with the 39 participants. Interview guides for the groups and in-depth interviews were semistructured and posed questions regarding pregnancy intentions, reproductive health needs, how (RH) services should be offered by a provider in Primary care.	The results of the interviews showed that women were receptive to the receiving RH services in primary care and the benefits to streamlining this care provided that physicians approached the services in a manner that respects patient autonomy and desires. Participants did express concern about PCPs training and/or comfort in contraceptive counseling and preconception care.	

Pazol, K., Zapata, L.B., Tregear, S.J., Smith, N.M., & Gavin, L.E. (2016). Impact of contraceptive education on contraceptive knowledge and decision making: A systematic review. American *Journal of Preventive Medicine, 49(201)*, 46-56. 10.1016/j.amepre.2015.03.031 USA Level of Evidence I (Using hierarchy of evidence from Melynk & Fineout-Overholt, 2015)	The purpose of this systematic review was to evaluate contraceptive education interventions to guide national recommendations on quality family planning services.	Systematic Review	Between the year 2011 to 2015, 5,834 studies were found. Out of the studies found only 17 are included in the systematic review regarding contraceptive education interventions. Exclusion reasons: multisession course series, not feasible to perform intervention in clinic, and the effect of the intervention could not be separated from a broader counseling intervention.	Detailed information was collected from the 17 studies - study design, interventions, results, and information necessary to evaluate study quality. Education interventions were evaluated for the degree of involvement of a healthcare provider or an educator.	Results of the systematic review were favorable with past evidence that suggests a broad range of educational interventions can increase knowledge.	Articles in review were from 2011-2015

Rodriguez, J., Abutouk, M., Roque, K., & Sridhar, A. (2016) Personalized contraceptive counseling: Helping women make the right choice. *Journal of Contraception, 7*, 89-96. http://dx.doi.org/10.2147/OAJC.S81546 USA Level of Evidence V (Using hierarchy of evidence from Melynk & Fineout-Overholt, 2015)	A review that focuses on an overview of available contraceptive methods and contraceptive counseling that can be used or incorporated to help women make the right choice of birth control.	Systematic review of qualitative or descriptive studies	n.a.	n.a.	Health care providers must consider the most effective contraceptive methods that best fit patients, while allowing patients to have an active involvement in their family planning process. Counseling sessions should consist of visual aids that list contraceptives by their effectiveness, efficiency, and general preference by patients.	Advocates visual aids and shared decision making.

Schrager, S., Larson, M., Carlson, J., Ledford, K., & Ehrenthal, D.B. (2020). Beyond birth control: Noncontraceptive benefits of hormonal birth control and their key role in the general medical care of women. *Journal of Women's Health, 29(7)*, 937-943. 10.1089/jwh.2019.7731 USA Level of Evidence n.a. (Using hierarchy of evidence from Melynk & Fineout-Overholt, 2015)	The purpose of this article is a comprehensive literature search to review the common hormonal contraceptive methods and provide an overview of their central role in the general medical care of women.	n.a.	n.a.	n.a.	Hormonal contraceptives provide high-quality evidence based ability for providers to help manage general health care concerns for women - such as acne, migraines, bleeding disorders, PCOS, preconception health, pregnancy avoidance, balance the risk of teratogenic medications. Access and knowledge of hormonal contraceptive methods in crucial in the care of women and barriers to their use put the health outcomes of both women and infants at risk.	

Schwarz, E.B., Parisi, S.M., WIlliams, S.L., Shevchik, G.J., & Hess, R. (2012). Promoting safe prescribing in primary care with a contraceptive vital sign: A cluster randomized controlled trial. *Annals of Family Medicine, 10(6)*, 516-522. 10.1370/afm.1404. USA Level of Evidence II (Using hierarchy of evidence from Melynk & Fineout-Overholt, 2015)	The purpose of this study is to evaluate the feasibility and efficacy of obtaining a 'contraceptive vital sign' as a routine intake assessment of women's pregnancy intentions and contraceptive use on primary care physicians' provision of family planning services.	Cluster-randomized controlled trial	Introduced at a large, academic general internal medicine practice. 53 physicians - both internal medicine residents and supervising physicians. Control group - 29 physicians, 3,782 visits by fertile female patients age 18-50 years Intervention group - 26 physician, 1,589 visits by fertile female patients aged 18-50 years.	Physicians were randomized into an intervention and a control group. Patients seeing the control group were asked only standard intake questions. Patients seeing the intervention group were given an intake questionnaire about pregnancy intentions and contraceptive use - The contraceptive vital sign. When patients answered that they were pregnant or trying to become pregnant a warning statement would fire to signal consideration pregnancy safe medications.	Documentation of contraception increased from 23% to 57% in the interventions group. Documentation also increased for visits that involved a teratogenic prescription from 14% to 48%; however, only 7% were provided family planning services after being prescribed potential teratogens. Using a decision tool or warning statement in the chart to address contraception and potential pregnancy planning improved documentation of contraceptive use.	
Stulberg, D.B., Dahlquist, I.H., Disterhoft, J., Bello, J.K., & Hunter, M.S. (2019). Increase in contraceptive	The purpose of this pilot study is to assess the One Key Question clinical tool impact on clinical care and examine the	Pilot Study. Randomized - control trial	Sixty-three patients at a federally qualified health center in Chicago's west side were	The clinical tool, One Key Question ® was implemented into the EMR of the Chicago	There was found to be a statistically significant increase in patients reporting that their provider talked to them about birth control	Clinical tool implementation

counseling by primary care clinicians after implementation of one key question ® at an urban community health center. *Maternal and Child Health Journal, 23*, 996-1002. https://doi.org/10.1007/s10995-019-02754-z USA Level of Evidence III (Using hierarchy of evidence from Melynk & Fineout-Overholt, 2015)	changes in preconception and contraceptive counseling after implementation.		participants in the study. 29 were in the pre-intervention group (before the implementation of the clinical tool) 34 women were included in the post-intervention group (after the implementation of the clinical tool). Inclusion criteria: women, 18-49 y.o., not currently pregnant, and say a physician during September 2014 to Jan. 2015	community health center. One Key Question prompts providers into asking patients if they would like to become pregnant in the next year and then facilitates open dialogue between patient and provider about the patients reproductive goats, contraceptive options, and preconception counseling. Clinicians were provided an in-person training prior to implementation. Pre and post intervention surveys were completed by each patient and compared.	during their visit.(52% vs 76%). Increased contraceptive care was noted among women presenting to the clinic for general health reasons. Many clinicians recommended a long-acting reversible contraceptive method. (32%)	
Worthington, R.O., Oyler, J., Pincavage, A., Baker, N.A., Saathoff, M. &	The purpose of this article is to evaluate the effectiveness of developing a	Cohort Study	58 Internal medicine residents	The intervention included a curriculum developed to focus	The results after the curriculum showed overall improvement in perceived barriers to	

Rusiecki, J. (2020). A novel contraception counseling and shared decision-making curriculum for internal medicine residents. MedEdPORTAL, 16. https://doi.org/10.15766/mep_2374-8265.11046 USA Level of Evidence IV (Using hierarchy of evidence from Melynk & Fineout-Overholt, 2015)	curriculum to teach contraception counseling under a shared decision-making framework for internal medicine residents.			on contraceptive counseling using an existing seven-step model of shared decision-making for internal medicine residents. Consisted of didactic teaching sessions with integration of interactive discussions and videos. Part of a women's health curriculum taking over 2 years and involved 10 didactic sessions lasting an hour each.	contraception counseling. On pre- and post curriculum surveys, residents reported increased knowledge and comfort in contraception counseling (57% to 70%) The curriculum was found to address common knowledge gaps in residency primary care education.	
Wu, J.P., Damschroder, L.J., Fetters, M.D., Zikmund-Fisher, B.J., Crabtree, B.F., Hudson, S.V., Ruffin, M.T., Fucinari, J., Kang, M., Taichman, L.S., & Creswell, J.W. (2018). A web-based	The purpose of this mixed-method implementation project, MiHealth MiChoice study, is to design and implement a theory-driven, web-based contraceptive design	Convergent Mixed-Methods Implementation Study. Descriptive/ Qualitative study.	Participants will be from a recruitment of 6 community based primary care practices.	Phase 1 and aim 1 (of 3). Determine which patient-, provider-, and practice- level factors that are relevant to the design and implementation of the contraceptive	N/A at this time. Authors anticipate study completion in 15 months.	Conceptual models from the reproductive justice theory and the health behavior theory. Clinical decision tool implementation study.

decision tool to improve contraceptive counseling for women with chronic medical conditions: Protocol for a mixed methods implementation study. *JMIR Research Protocols, 7(4)*. 10.2196/resprot.9249 USA Level of Evidence VI (Using hierarchy of evidence from Melynk & Fineout-Overholt, 2015)	tool for women with chronic conditions who are being seen in primary care settings. PHASE 1 (of 3): Identify multilevel contextual factors that should drive the design and implementation of the contraceptive decision tool and subsequent study outcomes.			decision tool. Quantitative surveys and semi structured qualitative interviews with women who have chronic medical decisions, their PCPs, and clinic staff, along with field observations and practice activities.		

Reference

Melnyk, B. M., & Fineout-Overholt, E. (2015). *Evidence-based practice in nursing and healthcare: A guide to best practice* (3rd ed.). Wolters Kluw

Appendix B

Table 1

	2021				2022			
Objective	Oct. 2021	Nov. 2021	Dec. 2021	Jan. 2022	Feb. 2022	March 2022	April 2022	May 2022
Development of implementation plan								
Develop surveys and informational tool on handout								
Project proposal defense								
Project advisor and second reader approval								
IRB Submission								
IRB approval								
Recruitment of participants								
Delivery of Surveys and informational handouts to participants								
Collect surveys from participants								
Data collection and evaluation								
Evaluate objective outcomes								
Develop project final manuscript, paper, and ppt								
Project presentation to faculty committee and staff								
CSS Presentation Day								

Table 2

Logic Model for A Quality Improvement Project Utilizing an Interactive Decision Tool to Improve Contraceptive Counseling in Primary Care.

Assumptions	Inputs	Activities	Outputs	Immediate Outcome	Long-Term Outcome
Rates of contraceptive counseling are low among primary care providers due to a lack of confidence in particular methods and appointment time constraints. Interactive decision tools will provide primary care providers with an opportunity to increase rates of contraceptive counseling without constricting time. Interactive decision tools allow for a shared decision-making process between patients and their providers. Education provided through the *My Birth Control* tool will lead to an increased understanding and proper use of contraceptive methods.	Primary care providers from various healthcare organizations. Survey delivery platform. Access to the interactive decision tool, *My Birth Control.*	Recruitment of primary care providers willing to participate in the QI project and trial the tool. Distribute pre-tool survey, *My Birth Control* tool informational handout, and a post-tool survey to participants. Collect surveys from participants. Organize participant survey responses, analyze data, and categorize any common themes among survey responses.	The number of project participants The number of survey questions. The number of returned surveys from participants.	The interactive tool will increase the occurrence of contraceptive counseling in primary care settings. Primary care providers will implement a more shared decision making approach to contraceptive counseling. Primary care providers will express an increased confidence and knowledge in providing contraceptive counseling.	Implementation of a practice or policy change in the delivery of contraceptive counseling by the healthcare organization as a whole and among primary care providers within that organization.

Appendix C

The College of St. Scholastica

A Quality Improvement Project to Improve Contraceptive Counseling in Primary Care

Each year, over half of the annual 6.1 million pregnancies are unintended. These high rates of unintended pregnancies have been linked to inconsistent or incorrect use of effective contraception, leading to method failure. Unintended pregnancies lead to poor health and socioeconomic outcomes for mother and baby, such as low birth rate, increased risk of miscarriage, higher school dropout rates, and delayed prenatal care.

Primary care providers often treat reproductive-age women with chronic medical conditions and prescribe teratogenic medications. These patients face a higher risk of complications in the event of unintended pregnancy. Removing barriers and prioritizing contraceptive counseling in clinical practice is vital in improving patient outcomes.

This quality improvement project aims to provide healthcare providers with an opportunity to review an interactive decision tool designed to improve contraceptive counseling practices and shared decision-making in clinical settings.

The *My Birth Control* tool is an interactive decision tool designed by the Person-Centered Reproductive Health Program (PCRHP) at the University of California San Francisco. The *My Birth Control* tool takes users through educational modules and a method preference survey. Based on the user's survey responses, a contraceptive profile is generated, including the listed method preferences, medical issues that may impact chosen methods, and any questions the user included for their provider. The patient and the healthcare provider review the generated contraceptive profile as a shared decision-making process.

Please fill out the pre-tool survey, review the *My Birth Control* Tool, and complete the post-tool survey. The My Birth Control tool can be found by scanning the QR code or visiting the link below:

- **Scan the QR code:** **or visit: https://clinic.mybirthcontrol.org/**

The College of St. Scholastica

Contraceptive Counseling Pre-Tool Survey

1. What are the current clinical practice requirements or policies regarding the delivery of contraceptive counseling of your healthcare organization? Please explain:

2. Please list three barriers to providing contraceptive counseling in a primary care setting.

3. How often do you rely on patients to initiate conversations regarding contraception?

1	2	3	4	5
Every time		Half the time		I always initiate

4. How would you rate your confidence when providing contraceptive counseling to women during their primary care clinic appointments?

1	2	3	4	5
Not at all confident		Moderately		Extremely confident

5. Do you feel that you have been provided with the adequate tools and training to provide contraceptive counseling to women in the primary care setting?

1	2	3	4	5
No tools or training		Some training		Expert Training

6. How often do you perform contraceptive counseling to reproductive-age women when prescribing potential teratogenic medications?

1	2	3	4	5
10-15% of the time		50%		100% of the time.

7. Would you be interested in using an interactive decision tool that made contraceptive counseling easier for you and your patients during appointments that won't interfere with time constraints?

1	2	3	4	5
Not at all interested		Neutral		Extremely interested

The College of St. Scholastica

Contraceptive Counseling Post-Tool Survey

1. As a healthcare provider, did you learn anything new about contraception or specific contraceptive methods after utilizing the *My Birth Control* tool? If yes, please describe:

2. Please describe your thoughts on how the *My Birth Control* tool could reduce barriers to contraceptive counseling in primary care settings.

3. After reviewing the *My Birth Control* tool, would you consider it a feasible intervention to improve contraceptive counseling rates in primary care settings compared to current clinical practices?

1	2	3	4	5
Not at all feasible		It's possible		Extremely feasible

4. From your perspective, could the pre-counseling education modules and method preference survey lead to increased adherence rates and decrease the risk of unintended pregnancies?

1	2	3	4	5
No Improvement		Minor		Major Improvements

5. Do you feel the *My Birth Control* tool could allow you to deliver direct and efficient contraceptive counseling and positively impact your allocated counseling times?

1	2	3	4	5
Not at all		Neutral		Extremely likely

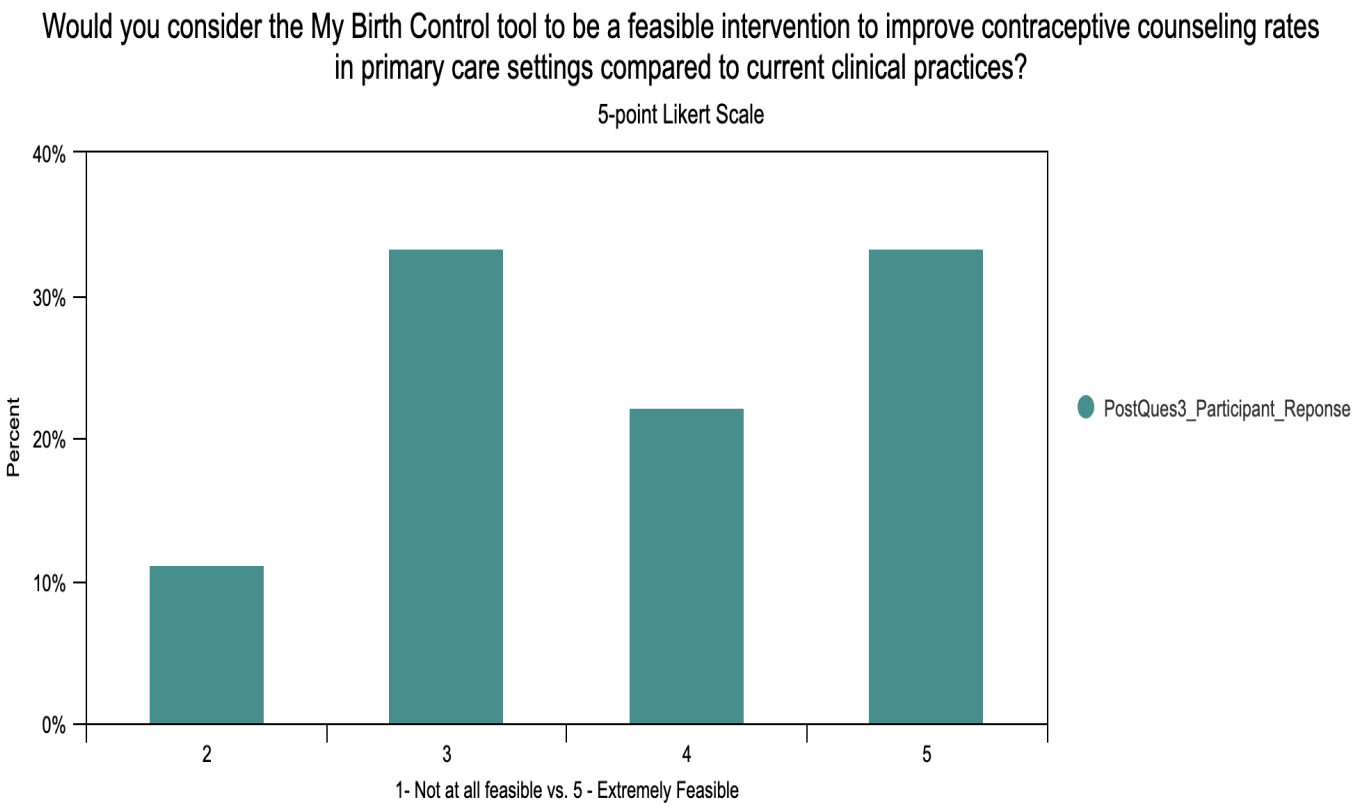
6. How would you rate *My Birth Control* tool's ability to improve patient satisfaction by incorporating a shared decision-making approach to counseling?

1	2	3	4	5
No improvement		Some		Very likely to Improve

7. Do you view the My Birth Control tool as user-friendly, even with patients unfamiliar or inexperienced with technology?

1	2	3	4	5
Very difficult to use				Very easy to use

Appendix D


Would you consider the My Birth Control tool to be a feasible intervention to improve contraceptive counseling rates in primary care settings compared to current clinical practices?
5-point Likert Scale
40%
30%
20%
10%
0%
Percent
2
3
4
5
1- Not at all feasible vs. 5 - Extremely Feasible
PostQues3_Participant_Reponse