Effective Health Care

Contraceptives to Prevent Unintended Pregnancy

Results of Topic Selection Process & Next Steps

The nominator, a patient, is interested in a new systematic review on the effectiveness, convenience, costs, and risk of breast and ovarian cancer associated with birth control medication. Due to the limited impact of a new review on this topic, the program will not develop a new review at this time. No further activity on this topic will be undertaken by the Effective Health Care (EHC) Program.

Topic Brief

Topic Name: Contraceptives to Prevent Unintended Pregnancy

Topic #: 0669

Nomination Date: December 6, 2012

Topic Brief Date: Jan 19, 2017

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Conflict of Interest: In November 2016, authors sought input from Dr. Jeanne-Marie Guise on this topic. Dr. Guise provided authors with a previously completed EHC brief on a similar topic (#0431) and gave guidance in the development of Key Questions and PICOs. Dr. Guise and Dr. Helfand are Co-Directors of the OHSU-affiliated US Cochrane—West Center. Recently, Dr. Guise has represented the US Cochrane—West Center in discussions to lead or become a satellite of the Cochrane Fertility Regulation Review Group, which oversees many of the Cochrane reviews pertinent to contraception. Dr. Guise and Dr. Helfand have not received any salary support for their activities related to the US Cochrane—West Center.

Summary of Key Findings:

- Appropriateness and importance: The topic is both appropriate and important.
- Duplication: We identified numerous systematic reviews that cover nearly the entire scope of the nomination. We identified 41 total published and in-process reviews that addressed the effectiveness, adherence/acceptability, side effects, other benefits, and other harms of contraceptives. However, these reviews did not address accessibility or costs of contraceptives- likely because these outcomes can vary by individual-level factors such as insurance status and geographic location.
- Impact: A new systematic review on the proposed topic would have limited impact. In 2016, the CDC released selected practice recommendations for contraceptive use, medical eligibility criteria with recommendations for individuals with particular characteristics or medical conditions, and an app (the “US MEC & US SPR App”). Therefore, the standard of care for contraceptive use is clear. There is practice variation in care, which has been attributed to the availability of funding and variation

in state policies, local medical norms and individual preferences. Issues of accessibility and costs of contraceptives are not tied to a knowledge gap, and are therefore not likely to be addressed by a new evidence review.

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Introduction

Approximately 45% of all pregnancies in the U.S. are unintended.[1] Unintended pregnancies are associated with delays in initiating prenatal care, worse birth outcomes, maternal depression, and negative effects on the child's mental and physical health and educational attainment.[2] There are a range of contraceptive options for preventing pregnancy, including barrier methods (eg, condoms, cervical caps, diaphragms), hormonal methods (eg, birth control pill, injectable, vaginal ring), long-acting reversible methods (eg, intrauterine devices), and surgical methods (eg, sterilization).

Topic nomination *#0669 Contraceptives to Prevent Unintended Pregnancy* was received on December 6, 2012. It was nominated by a patient. Because we could not contact the nominator to ascertain what they meant by "birth control medication," we included all forms of medical and surgical interventions for preventing pregnancy. We identified a nearly identical topic nomination- #0431- that was submitted on February 23, 2012 by the Oregon Evidence-based Practice Center (EPC) on behalf of a stakeholder panel. The topic nomination can be found here and the topic work-up can be found here. This topic nomination examined the comparative effectiveness of medical and surgical methods to prevent unintended pregnancies. We used the key questions from the 2012 nomination as a basis for the key questions and PICOs for the current nomination and added outcomes related to accessibility, costs and risk of breast and ovarian cancer, as these were not included in the 2012 nomination.

The question for this nomination is:

Key Question 1. What is the comparative effectiveness of medical and surgical interventions to prevent unintended pregnancy in women?

a. ! Barrier contraceptives (e.g., male and female condoms, cervical caps, and diaphragms)
b. ! Hormonal contraceptives (e.g., oral, transdermal, or injectables)
c. ! Long-acting reversible contraception (e.g., intrauterine devices, intrauterine systems, and contraceptive implants)
d. ! Various surgical approaches, including tubal ligation and vasectomy; and non-surgical, irreversible sterilization systems

To define the inclusion criteria for the key questions we specify the population, interventions, comparators, and outcomes, (PICOs) of interest. See Table 1.

Table 1. Key Questions and PICOTs !

Key Question	1. What is the comparative effectiveness of medical and surgical interventions to prevent unintended pregnancy in women?
Population	Women of reproductive age (adults & adolescents)
Interventions	a. Barrier contraceptives (e.g., male and female condoms, cervical caps, and diaphragms) b. Hormonal contraceptives (e.g., oral, transdermal, or injectables) c. Long-acting reversible contraception (e.g., intrauterine devices, intrauterine systems, and contraceptive implants) d. Various surgical approaches, including tubal ligation and vasectomy; and non-surgical, irreversible sterilization systems
Comparators	Other contraceptive method, alternative timing or dosage for contraceptive or no contraceptive method
Outcomes	• Reduction of unintended or mistimed pregnancies • Accessibility • Adherence/acceptability • Costs • Side effects (ie, adverse events) • Other benefits (including but not limited to breast cancer incidence, sexually transmitted infection transmission) • Other harms (including but not limited to ovarian cancer incidence)

Methods

To assess topic nomination *#0669 Contraceptives to Prevent Unintended Pregnancy* for priority for a systematic review or other AHRQ EHC report, we used a modified process based on established criteria. Our assessment is hierarchical in nature, with the findings of our assessment determining the need for further evaluation. Details related to our assessment are provided in Appendix A.

1. ! Determine the *appropriateness* of the nominated topic for inclusion in the EHC program.
2. ! Establish the overall *importance* of a potential topic as representing a health or ! healthcare issue in the United States. !
3. ! Determine the *desirability of new evidence review* by examining whether a new systematic review or other AHRQ product would be duplicative. !
4. ! Assess the *potential impact* a new systematic review or other AHRQ product.
5. ! Assess whether the *current state of the evidence* allows for a systematic review or other AHRQ product (feasibility).
6. ! Determine the *potential value* of a new systematic review or other AHRQ product.

Appropriateness and Importance

We assessed the nomination for appropriateness and importance (see Appendix A).

Desirability of New Review/Duplication

We searched for high-quality, completed or in-process evidence reviews pertaining to the key questions of the nomination. Table 2 includes the citations for the reviews that were determined to address the key questions.

Impact of a New Evidence Review

The impact of a new evidence review was assessed by analyzing the current standard of care, the existence of potential knowledge gaps, and practice variation. We considered whether it was

hypothetically possible for this review to influence the current state of practice through various dissemination pathways (practice recommendation, clinical guidelines, etc.).

Compilation of Findings

We constructed a table outlining the selection criteria as they pertain to this nomination (see Appendix A).

Results

Appropriateness and Importance

This is an appropriate and important topic. Approximately 45% of all pregnancies in the U.S. are unintended.[1] Unintended pregnancies are associated with delays in initiating prenatal care, worse birth outcomes, maternal depression, and negative effects on the child's mental and physical health and educational attainment.[2] The public cost associated with births from unintended pregnancies was $11 billion in 2006.[3]

Desirability of New Review/Duplication

A new evidence review examining this topic would be largely duplicative of existing products. We identified 41 total published and in-process reviews that address the effectiveness, acceptability/adherence, other benefits, side effects, and other harms of contraceptives. However, these reviews did not address accessibility or costs of contraceptives- likely because these outcomes can vary by patient-level factors such as insurance status and geographic location.

For KQ1a on barrier contraceptives, we identified 2 reviews: a 2012 Cochrane review[4] on cervical caps vs. diaphragms and a Cochrane protocol[5] on male vs. female condoms. For KQ1b on hormonal contraceptives, we identified 27 reviews: 18 completed or in-process Cochrane reviews[6-23] and 9 other completed or in-process reviews.[24-32] These reviews covered a range of hormonal contraceptive treatment options, including different combinations of progestin and estrogen, different routes of administration, different treatment regimens, immediate vs. delayed timing of initiation, and effects for population subgroups (such as women who are overweight or diabetic). Several reviews addressed the impact of hormonal contraceptives on cancer risk, including kidney cancer, breast cancer, and breast and ovarian cancer. For KQ1c on long-acting reversible contraceptives, we identified 12 reviews: 8 Cochrane reviews or protocols [6,7,9,10,19,33 34,35] and 4 other in-process reviews.[36-39] For KQ 1d on permanent sterilization methods, we identified 6 reviews: 3 Cochrane reviews[40-42] and 3 other reviews.[43-45] These reviews covered both female and male sterilization techniques.

We also identified an archived 2013 AHRQ review[46] on the use of oral contraceptives for prevention of ovarian cancer and the associated risk of breast cancer. This review and its associated journal publications were not considered in the assessment of duplication because the review is archived. Authors note: although we identified a total of 25 Cochrane reviews and protocols that meet criteria for duplication, many of them are considered to be out of date by experts in the field.

See Table 2, Duplication column for the systematic review citations that were determined to address the key questions.

Impact of a New Evidence Review

A new systematic review on this topic would have limited impact. In 2016, the CDC released practice recommendations[47] for contraceptive use that discussed choosing a contraceptive method, initiating contraceptives (including necessary tests and procedures before initiation), and follow-up care (including monitoring of side effects). In 2016, the CDC also released medical eligibility criteria[48] with recommendations for individuals with particular characteristics or

medical conditions, and an app (the “US MEC & US SPR App”) with these recommendations. Therefore, the standard of care for contraceptive use is quite clear. There is practice variation in care, which has been attributed to the availability of funding supporting contraceptive choice (such as Title X funding)[49] and variation in state policies, local medical norms and individual preferences.[50] The issues surrounding accessibility and costs of contraceptives are not tied to a knowledge gap, and are therefore not likely to be addressed by a new evidence review.

Table 2. Key questions and results of search for systematic reviews and original research

Key Question	Duplication (Completed or In-Process Evidence Reviews)
KQ 1a. What is the comparative effectiveness of medical methods to prevent unintended pregnancy in women, including barrier contraceptives (e.g., male and female condoms, cervical caps, and diaphragms)?	Total number of completed and in-progress systematic reviews: • Cochrane: 1[4]* • In process (Cochrane): 1[5]
KQ 1b. What is the comparative effectiveness of medical methods to prevent unintended pregnancy in women, including hormonal contraceptives (e.g., oral, transdermal, or injectables)?	Total number of completed and in-progress systematic reviews: • Cochrane: 16[6-22]* • Other: 4[24-28,32] • In-process (Cochrane): 1[23] • In-process (Other): 3[29-31]
KQ1c. What is the comparative effectiveness of medical methods to prevent unintended pregnancy in women, including long-acting reversible contraception (e.g., intrauterine devices, intrauterine systems, and contraceptive implants)?	Total number of completed and in-progress systematic reviews: • Cochrane: 6[6,7,9,10,19,33] • In process (Cochrane): 2[34,35] • In process (Other): 4[36-39]
KQ1d. What is the comparative effectiveness of surgical methods to prevent unintended pregnancy in women, including tubal ligation and vasectomy; and non-surgical, irreversible sterilization systems?	Total number of completed and in-progress systematic reviews: • Cochrane: 3[40-42] • Other: 3[43-45]

*Reference #4 and #22 were published prior to 2011. However, authors have completed updated literature searches within the past 5 years and updated the reports.

Summary of Findings

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- Impact: A new systematic review on the proposed topic would have limited impact. In 2016, the CDC released select practice recommendations for contraceptive use, medical eligibility criteria with recommendations for individuals with particular characteristics or medical conditions, and an app (the “US MEC & US SPR App”). Therefore, the standard of care for contraceptive use is clear. There is practice variation in care, which has been attributed to the availability of funding and variation in state policies, local medical norms and individual preferences. Issues of accessibility and costs of contraceptives are not tied to a knowledge gap, and are therefore not likely to be addressed by a new evidence review.

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Appendices

Appendix A: Selection Criteria Summary

Appendix A. Selection Criteria Summary (

Selection Criteria	Supporting Data
1. Appropriateness	
1a. Does the nomination represent a health care drug, intervention, device, technology, or health care system/setting available (or soon to be available) in the U.S.?	Yes, this nomination represents health care drugs and devices that are available in the U.S.
1b. Is the nomination a request for a systematic review?	Yes, this nomination is a request for a systematic review.
1c. Is the focus on effectiveness or comparative effectiveness?	The focus of the nomination is on comparative effectiveness.
1d. Is the nomination focus supported by a logic model or biologic plausibility? Is it consistent or coherent with what is known about the topic?	Yes, the nomination focus is biologically plausible and is consistent with what is known on the topic.
2. Importance	
2a. Represents a significant disease burden; large proportion of the population	Yes, the nomination affects a large proportion of the population: 45% of all pregnancies in the U.S. are unintended.[1] Unintended pregnancies are associated with delays in initiating prenatal care, worse birth outcomes, maternal depression, and negative effects on the child's mental and physical health and educational attainment.[2]
2b. Is of high public interest; affects health care decision making, outcomes, or costs for a large proportion of the US population or for a vulnerable population	Yes, the nomination is of high public interest and greatly affects health care decision-making, outcomes, and costs for women of reproductive age.
2c. Represents important uncertainty for decision makers	Yes, the nomination represents important uncertainty for women of reproductive age, as they need to decide which contraceptive method is most appropriate based on effectiveness, ease of use, and other potential benefits and harms. However, there is no clinical uncertainty on the effectiveness of various contraceptive methods.
2d. Incorporates issues around both clinical benefits and potential clinical harms	Yes, the nomination incorporates issues around both clinical benefits and harms.
2e. Represents high costs due to common use, high unit costs, or high associated costs to consumers, to patients, to health care systems, or to payers	Yes, the nomination represents high costs to patients, health care systems, and payers. The public costs associated with births from unintended pregnancies was $11 billion in 2006.[3]
3. Desirability of a New Evidence Review/Duplication	
3. Would not be redundant (i.e., the proposed topic is not already covered by available or soon-to-be available high-quality systematic review by AHRQ or others)	We identified 41 total published and in-process reviews that address the effectiveness, acceptability/adherence, other benefits, side effects, and other harms of contraceptives. However, reviews did not address accessibility or costs of contraceptives- likely because these outcomes can vary by patient-level factors such as insurance status and geographic location.

	For KQ1a on barrier contraceptives, we identified 2 reviews: a 2012 Cochrane review[4] on cervical caps vs. diaphragms and a Cochrane protocol[5] on male vs. female condoms. For KQ1b on hormonal contraceptives, we identified 27 reviews: 18 completed or in-process Cochrane reviews[6-23] and 9 other completed or in-process reviews.[24-32] These reviews covered a range of hormonal contraceptive treatment options, including different combinations of progestin and estrogen, different routes of administration, different treatment regimens, immediate vs. delayed timing of initiation, and effects for population subgroups (such as women who are overweight or diabetic). Several reviews addressed the impact of hormonal contraceptives on cancer risk, including kidney cancer, breast cancer, and breast and ovarian cancer. For KQ1c on long-acting reversible contraceptives, we identified 12 reviews: 8 Cochrane reviews or protocols [6,7,9,10,19,33 34,35] and 4 other in-process reviews.[36-39] For KQ 1d on permanent sterilization methods, we identified 6 reviews: 3 Cochrane reviews[40-42] and 3 other reviews[43-45] The reviews covered both female and male sterilization techniques. We also identified an archived 2013 AHRQ review[46] on the use of oral contraceptives for prevention of ovarian cancer and the associated risk of breast cancer. This review and its associated journal publications were not considered in the assessment of duplication because the review is archived. Authors note: although we identified a total of 25 Cochrane reviews and protocols that meet criteria for duplication, many of them are considered to be out of date by experts in the field.
4. Impact of a New Evidence Review	
4a. Is the standard of care unclear (guidelines not available or guidelines inconsistent, indicating an information gap that may be addressed by a new evidence review)?	The standard of care for contraceptive use is clear. In 2016, the CDC released practice recommendations[47] for contraceptive use that discussed choosing a contraceptive method, initiating contraceptives (including necessary tests and procedures before initiation), and follow-up care (including monitoring of side effects). In 2016, the CDC also released medical eligibility criteria[48] with recommendations for individuals with particular characteristics or medical conditions, and an app (the "U.S. MEC & U.S. SPR App") with these recommendations.
4b. Is there practice variation (guideline inconsistent with current practice, indicating a potential implementation gap and not best addressed by a new evidence review)?	Yes, there is practice variation. Clinics that receive Title X funding offer more contraceptive methods and are more likely to have protocols that enable clients to easily initiate and refill prescriptions than those without

	Title X funding.[49] There is also geographic variation in contraceptive method use, due to the aforementioned availability of family planning services as well as state policies, local medical norms, and individual preferences.[50] Issues of accessibility and costs of contraceptives are not tied to a knowledge gap, and are therefore not likely to be addressed by a new evidence review.

Abbreviations: KQ=Key Question; CDC=Centers for Disease Control and Prevention; MEC=Medical Eligibility Criteria; SPR= Selected Practice Recommendation