Priority Roadmap for Policy-Ready Contraceptive Research
Environmental Scan Report

Measuring the Health, Economic, and Social Outcomes Related to Contraception

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ABSTRACT

Contraception allows individuals to better control their reproductive lives and has been demonstrated to have benefits across social, economic, and public health outcomes. Research has also examined the non-contraceptive benefits of birth control methods, including a range of health benefits. As priorities for research, practice, and policy are formulated, there is a need to synthesize the available evidence of outcomes related to contraception and identify areas where research is lacking. This report presents an overview of the available recent research into contraception's health, economic, and social outcomes based on 62 articles describing individual research studies and 20 additional articles of relevance; identifies research gaps; and makes recommendations for future research. There is a need for further research into experiences and perspectives of communities most impacted by limited contraceptive access, especially using qualitative methods to examine outcomes related to contraception using a more holistic approach; effects of contemporary contraceptive access policies and funding changes; the economic and social outcomes of expanded access to Long-Acting Reversible Contraception (LARC), particularly when made accessible through person-centered approaches; and social outcomes of contraceptive access, such as quality of life and wellbeing.

INTRODUCTION

The Coalition to Expand Contraceptive Access (CECA) is leading a collaborative process to create **a Priority Roadmap for Policy-Ready Contraceptive Research.** Building on the existing foundation of the coalition and leveraging its unique positioning and diverse collaborative relationships, CECA will:

- Craft a long-term, national-level research and policy agenda.
- Identify the rigorous evidence needed to influence policy, leverage federal processes, and set the stage for state-level implementation.
- Position funders, researchers, and clinical organizations to strategically invest in and carry out ongoing research to inform policies.

To begin the process of identifying existing needs and innovations in the field, CECA performed a series of six targeted and strategic environmental scans[1] to survey existing evidence on key priority topics related to contraceptive access and identify where gaps remain to build a solid foundation of research. The environmental scan findings and supplementary evidence sources will serve as the basis for CECA's Research Roadmap Workgroup's efforts to understand the current body of evidence around contraceptive access, identify research needs and innovation, prioritize research gaps and promising practices, and translate evidence into national research and policy priorities and actions.

This report describes the findings of the environmental scan **on measuring the health, economic, and social outcomes related to contraception**. In addition to preventing pregnancy and allowing individuals to better control when and whether they have children, contraception provides other health, social, and

[1] The environmental scan topics were: (1) Definitions and measures of reproductive and sexual health-related constructs; (2) Measuring health, economic and social outcomes related to contraception; (3) Impact of major policy changes related to contraceptive access; (4) Implementation and evaluation of pharmacist-prescribed contraception; (5) Implementation and evaluation of statewide contraceptive access initiatives; and (6) Contraceptive care workforce.

economic benefits. These outcomes have been studied using a range of methodologies and approaches; however, gaps still remain in our knowledge base. CECA undertook this environmental scan to inform these discussions and future research efforts.

For this environmental scan, the team sought to identify evidence to address the following key research questions:

1. What methodologies do researchers use to measure the effects of contraception/contraceptive access on health, economic and social outcomes?
    a. What methods are used to control for the effects of contraception?
    b. Depending on study type, what policy levers or natural experiments are examined?
    c. How is "contraceptive access" defined and measured in these studies? Is analysis limited to certain contraceptive methods?
    d. What are potential strengths/weaknesses to study design that may bolster or limit interpretation of findings?

2. How have researchers measured the effects of contraception/contraceptive access on:
    a. Public health outcomes (e.g., unintended pregnancy, birth/abortion rates, birth outcomes)?
    b. Individual health outcomes (e.g., women's/maternal health, neonatal/pediatric health)?
    c. Public economic outcomes?
    d. Individual economic outcomes (e.g., education, labor force outcomes, income)?
    e. Social outcomes?

3. What have studies found about the impact of contraception on various types of outcomes?

4. What are promising directions for future research?
    a. What questions remain unanswered?
    b. What are gaps in terms of methods/policies/populations that are understudied?
    c. What research should be updated?

METHODS

The scope of the environmental scan focused on identifying peer-reviewed and grey literature that included approaches for measuring the benefits of contraception. This scan encompasses research based in the U.S., including literature published in peer-reviewed journals and released as less formal working papers or reports (i.e., grey literature). The criteria for inclusion and exclusion for this environmental scan were purposefully broad to identify and retrieve as much potentially relevant information as possible. Research was generally limited to literature published in the past ten years, with some exceptions for earlier formative work on the economic outcomes related to contraceptive access, as it was deemed necessary for inclusion. Searches were conducted on Google, Google Scholar, and PubMed during December 2020 to January 2021. Search terms are listed in the Appendix.

SUMMARY OF FINDINGS

Description of Search Results

The CECA team identified **62 articles** describing individual research studies that met the inclusion criteria: [2]

- **42 articles** were related to public health and fertility-related outcomes (including pregnancy, birth, abortion, and Sexually Transmitted Infections (STI) rates and birth outcomes).
- **13 articles** evaluated public economic outcomes.
- **12 articles** were related to individual economic outcomes.
- **12 articles** examined social and other related outcomes such as sexual activity and quality of life.
- **1 article** examined maternal and women's health outcomes.

An additional **20 literature reviews** of relevance were identified and included in the environmental scan: [2]

- **13 reviews** summarized the efficacy and non-contraceptive health benefits of various forms of contraception.
- **3 reviews** examined fertility outcomes.
- **3 reviews** synthesized findings on economic and social outcomes.
- **2 reviews** examined outcomes related to female sexual function.

This report begins by outlining the various approaches to studying the outcomes related to contraception, including the strengths and weaknesses of different study designs. This section also described how researchers have measured contraception—whether use of contraception itself or contraceptive access more broadly. Next, this report describes the actual outcomes of contraception that have been measured, including individual and public health outcomes, economic outcomes, and social and behavioral outcomes. Finally, this report suggests research questions that have yet to be answered that would meet expand the existing knowledge base.

HOW HAVE RESEARCHERS STUDIED THE EFFECTS OF CONTRACEPTION?

Study Design

Randomized Control Trials

Randomized Control Trials (RCTs) are considered the gold standard in assessing an exposure's impact. A causal relationship can be determined, because biases are mitigated by the randomization of subjects to either receipt or absence of the exposure. In the case of contraceptive use—typically a decision that an individual makes based on personal preference and pregnancy intentions—it is also not always ethical or feasible to randomize study subjects to control groups. What's more, RCTs are more costly than other study designs—a secondary analyses of existing data for example—which can be an additional barrier. When examining contraceptive use with RCTs, there are also issues of self-selection, because RCTs tend to recruit women who are using or interested in contraception and are accessing family planning services. Additionally, the typical length of RCTs typically limit findings to short-term effects.

In recent literature—unlike earlier medical studies determining contraceptive methods' safety and efficacy—this study design is less common. Harper and colleagues, though, conducted a cluster randomized control trial in which clinic sites were randomized to receive training on Intrauterine Device (IUD) and implant counseling and insertion (Harper et al., 2015). Rather than implementing a treatment at the patient level, this study included both clinics receiving the training intervention and those providing standard care.

[2] These categories were not mutually exclusive, and many articles identified in the scan analyzed a range of outcomes across categories.

Forty clinics in the U.S. participated in this study. The sample population included women ages 18-25 years at family planning or abortion visits who expressed a desire to avoid pregnancy for the next year. The researchers examined rates of Long-Acting Reversible Contraception (LARC) uptake, with pregnancy incidence within the yearlong follow-up period as a secondary outcome. Researchers used intent-to-treat analyses using general estimated equations to assess contraceptive use and survival analyses to examine pregnancy outcomes. They found that the intervention lowered pregnancy rates among women recruited at family planning clinics but not among women recruited at abortion visits. More women at intervention clinics received both counseling on LARC and chose LARC methods.

Quasi-Experimental Studies

To measure a causal effect without an RCT, researchers often turn to quasi-experimental study designs, using econometric statistical methods to isolate a causal impact. By taking advantage of natural experiments, such as policy changes that occur at different times based on geographic location, researchers can measure the effects of a policy change. To do this, the policy change must be exogenous, meaning it is not related to other variables being studies—particularly the outcome. Using statistical techniques, such as instrumental variable analyses and difference-in-difference models, the effect of the exposure can be separated from underlying factors, even if those factors cannot be feasibly measured.

For example, Bailey et al. used this quasi-experimental design to compare poverty levels in cohorts born before and after the availability of family planning funding at a county-level (Bailey et al., 2014). Researchers looked at census county groups, in which all counties received family planning funding before 1974, and compared individuals born 1-6 years after the family planning program began to those born 0-2 years prior to program funding. Outcomes of these cohorts were examined both in childhood and adulthood, using difference-in-difference specifications and fixed effects. This study found a reduction in poverty for cohorts, both in children and adults, with results discussed in greater depth later in this report. Other quasi-experimental studies identified in the scan examined policy levers, such as legislation to regulate the provision of abortion services in Targeted Regulation of Abortion (TRAP) laws; spending on public family planning programs at the federal and state-levels, such as the Title X Family Planning Program; and regulations that impact scope of practice to expand access to contraception, such as state regulations around pharmacist-prescribed contraception.

Many large-scale family planning interventions conduct quasi-experimental studies of prospective cohorts to follow women for a set amount of time after the study exposure to see how outcomes change over time or track pregnancy outcomes for longer durations. The Contraceptive CHOICE Project, for instance, recruited from community clinics in St. Louis with eligibility limited to adolescent girls between the ages of 15 and 19 years (14 at time of recruitment) who were sexually active and not desiring pregnancy in the next year (Secura et al., 2014). Unlike RCTs, patients opted into this study and were not randomized. The program offered tiered-effectiveness contraceptive education along with no-cost contraception (participants could choose any reversible method). The primary outcomes of the study were the rates of pregnancy, live birth, and abortion observed among participants, which were then compared to national rates. The pregnancy, birth, and abortion rates of CHOICE participants were found to be substantially lower than national rates.

Observational Public Health Studies

Many studies of contraceptive access use prospective cohort designs to investigate the effects of family planning programs. In others, retrospective data collection or collection of medical chart data is used to compare outcomes. In observational studies or secondary data analyses of existing data sets, public health researchers attempt to mitigate potential biases by controlling variables that might confound the relationship between the exposure and outcome. Common control variables in studies measuring

outcomes related to contraception include age, race/ethnicity, income, parity, previous contraceptive use, and educational level. For example, Raine et al. conducted a longitudinal cohort study design to assess contraception continuation and pregnancy among adolescent girls and young women up to 24 years old (Raine et al., 2011). Participants, who were contraceptive users (specifically users of the patch, ring, Depot Medroxyprogesterone Acetate (DMPA), or pills) and indicated that they did not desire pregnancy for at least one year, completed assessments at baseline and 3-months, 6-months, and 12-months after baseline. The study found that that continuation rate at 12 months was low for all contraceptive methods; however, contraceptive continuation was lowest among adolescent girls and young women using the patch (10.9 per 100 person years) and DMPA (12.1 per 100 person years).

This natural experiment design, however, is not always an option. One of the downsides to this approach is the existence of variables that are not measured or cannot be measured—making it impossible to control for those factors. For instance, participants' pregnancy intentions—which can be complex and difficult to accurately quantify—might impact the type of contraception they use and their adherence to that method. Additionally, cross-sectional studies have their own limitations in terms of temporality, as outcomes and exposures are measured simultaneously. This further limits researchers' ability to understand the causal nature of the relationship. When prospective cohorts are used, loss to follow-up presents its own challenge by potentially introducing bias to study results.

Studies included in this review use existing data sources to model estimates of outcomes—such as births resulting from unintended pregnancies—often using decision trees to simulate contraceptive users' decision making. These methods are useful when large-scale randomized or cohort studies are not possible. These simulations allow researchers to extend analyses to subsequent outcomes that were not directly measured.

Exposure Measurement: Contraceptive Use vs. Access

Studies identified in the scan defined and measured contraceptive access in a variety of ways. Most of this literature examines changes to age of majority laws in the 1960s and early 1970s as a function of contraceptive access—in effect, these state policy changes granted legal access to the birth control pill to unmarried women ages 18-20 years. Other studies measure the effects of Comstock laws, which prevented the sale of "obscenities," including contraception. Although invalidated at the federal level, many states continued to enforce similar statutes into the early 1960s, creating variation in where married women could access the pill. One study uses variation in laws governing early marriage, as marriage allowed women to gain contraceptive access. A related subset of this literature examines the rollout of family planning programs by county, because actual access was increased by the funding streams that later became the Title X program. Recent literature examines effects of contraceptive insurance mandates as a proxy for contraceptive access—a policy change more relevant to present-day changes in contraceptive access.

A benefit of these studies is their ability to measure changes on a large scale, often using nationwide estimates and rich data sources, such as census data. However, they are not measuring actual use of contraception, rather access more broadly. Medical research and public health literature tend to assess actual use of contraception, through medical chart data, interviews, questionnaires, or secondary analyses of previously collected data sets. Other studies identified in the scan defined and measured contraceptive access by examining affordability of services via insurance coverage mandates, or low/no-cost contraceptive programs; availability and accessibility of services via funding for public family planning programs, or expansion of providers who can prescribe contraception; and acceptability of services via increased evidence-based training on the provision of contraceptive counseling and provision.

OUTCOMES EXAMINED AND KEY FINDINGS

Public Health Outcomes

The bulk of available research identified in the scan examined population-level outcomes: 37 studies (and four literature reviews) examine fertility outcomes, four studies analyze birth outcomes, and seven studies (and one review) examine outcomes related to rates of STIs.

Fertility Outcomes: Unintended Pregnancy, Birth, and Abortion Rates

The most straightforward benefit to contraception is its intended effect: allowing women to plan, space, and avoid pregnancies as desired. Contraceptive methods vary in their effectiveness in preventing pregnancy, with LARC methods—implants and IUDs—being the most effective. Short-acting methods, including the pill, patch, injectable and vaginal ring, are highly effective when used perfectly but depend on consistent and correct use on the part of the contraceptive user (Guttmacher Institute, 2020).[3] One yearlong cohort study following girls and women ages 15-24 years choosing to initiate use of the patch, vaginal ring, DMPA, or pills at public family planning clinics found pregnancy rates to be highest for patch and ring users and comparable among pill and DMPA users (Raine et al., 2011).

Effects of Changes to Access in the 1960s and 1970s

Economic literature focusing on early legal access to the pill and the rollout of federally funded family planning programs examine fertility outcomes in addition to women's economic outcomes. Both measures of contraceptive access contributed to a reduction in U.S. birth rates (Bailey, 2010); however, it only looks at currently married, white women—so results are likely less generalizable (Bailey, 2010, 2012; Guldi, 2008). Outcomes differ by demographics: family planning funding led to reductions and delays in childbearing to low-income women and legal contraceptive access for minors saw a decrease in birth minors' birth rates concentrated among white women (Bailey, 2012; Guldi, 2008).

Effects of Medicaid and State Family Planning Funding

When examining state-level Medicaid changes expanding contraceptive access to higher-income women and beneficiaries whose coverage would otherwise expire, one study found significant reductions in births (Kearney & Levine, 2009). More recently, the implementation of a restrictive policy in Texas in 2011 resulted in the closure of 80 clinics and a reduction in funding for family planning services by 67% (Packham, 2017). Researchers found that teen births increased by 3.4% over four years as a result (Packham, 2017). In the California context, a model estimated the state Medicaid waiver program—Family PACT— averted 286,700 unintended pregnancies, including 122,000 abortions, 133,000 births resulting from unintended pregnancies, and over 40,000 teen births (Foster et al., 2011).

Effects of Private Insurance Coverage

An additional body of research examines fertility outcomes of insurance mandates for contraception coverage. The majority of these studies take advantage of variation in state policies before the passage of the Affordable Care Act (ACA). These studies have found mixed results on birth rates: Gius found a significant and negative impact on birth rates (using state-level data on fertility rates among women ages 15-44 years from all 50 states); Mulligan (using Behavioral Risk Factor Surveillance System (BRFSS) data on women 18-44 who are not pregnant and who do not have a same-sex partner) found a decrease in the abortion rate (by 3%) but no change in birth rates; and Johnston and Adams found a reduced probability of unintended and mistimed births among women with private insurance, when examining Pregnancy Risk

[3] Permanent contraceptive methods (male and female sterilization) and coitally-dependent methods (external and internal condoms, diaphragms, sponges, spermicides, and withdrawal) are not the focus of this review.

Assessment Monitoring System data of privately-insured mothers in 24 states (Gius, 2013; Johnston & Adams, 2017; Mulligan, 2015).

A lack of measured effects on birth rates might be a result of heterogeneity among different populations: one analysis—of all singleton births in all 50 states conceived between 1996 and 2009—found a 4% decline in the Hispanic birth rate due to contraceptive insurance mandates (Dills & Grecu, 2017). One study using a decision-tree model to predict outcomes for a simulated cohort of one million U.S. women, based on data from the National Survey of Family Growth (NSFG; women ages 15-44 years). This model found denial of contraceptive coverage significantly increased unintended pregnancy, births, and abortions (Canestaro et al., 2017).

Effects of Increased LARC Access

Though short-acting methods have been well studied since the FDA's approval of the first oral contraceptive pill in 1960, more recent literature tends to focus on LARC methods' potential for decreasing unintended pregnancy. Researchers used a clustered randomized trial to assess the effect of clinics' receipt of evidence-based training on counseling and insertion of IUDs and implants, with patients eligible for study enrollment if they were women ages 18–25 years not desiring pregnancy in the next 12 months (Harper et al., 2015). The pregnancy rate was reduced among participants recruited at family planning visits, but no change was found among women recruited at abortion visits (Harper et al., 2015). Researchers later used the contraceptive method mix data from this study to model outcomes on a nationwide level and found substantial decreases in unintended pregnancy, births resulting from unintended pregnancies, and abortions (Welti & Manlove, 2017).

Much of the research in this area focuses on state or local initiatives to increase LARC usage to lower-income women, such as the St. Louis Contraceptive CHOICE Project, Colorado's Family Planning Initiative (CFPI), and Upstream's intervention Delaware Contraceptive Access Now (Delaware CAN). In the CHOICE Project cohort, researchers found substantial reductions in teen pregnancy, birth, and abortion rates in the St. Louis area compared to national rates, as well as a reduction in repeat abortions (Birgisson et al., 2015; Peipert et al., 2012; Secura et al., 2014; Winner et al., 2012).

CFPI has also been linked to a reduction in birth and abortion rates (Ricketts et al., 2014). Using a difference-in-differences approach, researchers found that CFPI reduced the teen birth rate in counties that received funding (Lindo & Packham, 2017). A further exploration found that CFPI reduced births to teens aged 15-19 by 20%, with reductions concentrated among women living within seven miles of a clinic; after CFPI was covered extensively by the media, reductions in births extended to births from teens ages 15-17 years living greater than seven miles from clinics and births to women ages 20-29 years (Kelly et al., 2020).

Regarding Delaware CAN, researchers have used a model to stimulate fertility outcomes based on the changes in contraceptive method use that resulted from the program and found a decline in unintended pregnancy (Welti & Manlove, 2018).

Interpreting Results from LARC Interventions: Reason for Caution
It is important to note that estimates from LARC promotion programs likely overestimate the population-level effects of LARC uptake. These samples are biased towards women with a high desire to prevent pregnancy. High-end estimates for LARC's effects on unintended pregnancy often extrapolate LARC uptake to the non-contracepting population, when in fact many contraception users are switching from other methods—resulting in an overestimation of effects (Thomas & Karpilow, 2016). In modeling data from the Contraceptive CHOICE Project, researchers estimate that nearly three quarters of its pregnancy effects could have been achieved with use of shorter-acting, female-controlled methods (Karpilow & Thomas, 2017). When modeling teen pregnancy

rates nationwide, slightly more than half of the decline seen in the U.S. between 2002 and 2010 was, in fact, a result of increased condom use rather than use of more effective methods (Manlove et al., 2016).

Effects of Emergency Contraception

Emergency Contraception (EC) has also been separately analyzed for its effects on fertility, facilitated by variation in access to non-prescription EC by state and age. Much of this research has found no impact on abortion rates or birth rates (Durrance, 2013; Gross et al., 2014; Mulligan, 2016). A 2013 systematic review of advanced provision of EC found no evidence of reduced risk of unintended pregnancy (Rodriguez et al., 2013). However, there is some evidence that EC access modestly reduced abortion rates in Washington state, when taking into account actual proximity of a pharmacy providing non-prescription EC and when examining access by age group rather than location (Cintina, 2017; Cintina & Johansen, 2015).

The lack of evidence on population effects of EC, such as unintended pregnancy, might be due to which groups of women access EC. Research suggests that expanded EC access might increase use among women already at low risk of unintended pregnancy, so population effects might be diminished (Baecher et al., 2009).

Effects of Contemporary Policies to Expand Access

Access to contraception has more recently been measured through contemporary policy options, such as dispensing of oral contraceptives in greater supply. When compared with women who received pills in one- or three-month supplies, women receiving a one-year supply were less likely to have a pregnancy—there was a 30% reduction in the odds of unplanned pregnancy and a 46% reduction in odds of an abortion (Foster et al., 2011). However, no causal claim can be made; this analysis looked at associations between pill supply and pregnancy but is not able to establish a causal relationship between the two. Although many important factors (such as age, race/ethnicity, and previous pill use) were controlled for in the study, there are other factors that might contribute to these results. For instance, there is a risk of selection bias—meaning women with stronger desires to avoid pregnancy could have been dispensed greater supplies of contraception, since women were not randomized into a length of contraceptive supply. Nonetheless, these results demonstrate an association that should be further investigated.

Another study modeled effects of pharmacist prescription of hormonal contraception among women at risk for unintended pregnancy in the Oregon Medicaid program (Rodriguez et al., 2019). Examining outcomes for the two years after an Oregon law change allowed pharmacists to prescribe contraception—during which 1,313 prescriptions were written for 367 women—researchers found that the policy averted an estimated 51 pregnancies. The authors expect that the number of unintended pregnancies avoided would increase as knowledge of and use of pharmacist prescription of contraception increases (Rodriguez et al., 2019).

Birth Outcomes

A 2011 systematic review published by Shah et al., 2011 reviewed studies on the intention to become pregnant and low birth weight and preterm birth. Study authors uses a broad definition of unintended pregnancy that included women who indicated they never wanted to become pregnant, wanted to become pregnant later, or were unsure regarding their pregnancy intentions. The review found that unintended pregnancies ending in a live birth, whether unwanted or mistimed, are associated with increased risk of low birth weight and preterm birth (Shah et al., 2011). An additional body of literature focuses on unintended pregnancy and birth spacing, and their effects on birth outcomes (Kavanaugh & Anderson, 2013). This environmental scan report, however, focuses on studies examining outcomes directly related to contraceptive access and use.

Another study estimated a significant reduction in preterm births to women in Colorado counties with CFPI funding, as well as an association between higher proportion of LARC use and decreased risk of preterm birth; researchers did not find a significant impact on low birthweight (Goldthwaite et al., 2015). A separate analysis suggests that CFPI reduced low birthweight infants by 12.6% and very low birthweight infants by 9.4% (Kelly et al., 2020). These mixed findings suggest that additional research is needed into CFPI's effects on birth outcomes.

Simulations of data from an intervention to train providers with the goal of increasing LARC uptake suggest that the decline in unintended pregnancy would translate to reductions of adverse birth outcomes including premature birth and low birthweight (Welti & Manlove, 2017). However, the study's findings found all reductions to be a result in the overall number of births, rather than the proportion of newborns experiencing these outcomes. Future research focusing on unintended pregnancy and adverse birth outcomes might yield different results, as large-scale population studies might mask differences between groups.

Contraceptive insurance mandates might impact birth outcomes. One study assessing the impact of state contraceptive insurance mandates on births and parental investment (defined as prenatal visits, non-marital childbearing, and risky behaviors during pregnancy) found no change in birth outcomes (Dills & Grecu, 2017).

There is some evidence that the pregnancy planning and spacing benefits of contraception extend to improved health outcomes for children; however, most of these effects appear to be occurring through the same pathways causing adverse prenatal and birth outcomes (Kavanaugh & Anderson, 2013).

Sexually Transmitted Infections

Research has demonstrated mixed results on how access to contraception has affected rates of Sexually Transmitted Infections (STIs). There is evidence of increased gonorrhea rates (both overall and for women ages 15-24 years) after implementation of Washington state's pharmacy access policy and increase of STI rates nationwide in response to policies allowing pharmacy access (Durrance, 2013; Mulligan, 2016; Zuppann, 2012). A systematic review of advanced provision of EC, however, found no evidence of changes on STI rates (Rodriguez et al., 2013). Earlier RCTs (outside the temporal scope of this review) generally find no increase in STI rates as a result of advanced provision of EC; analyses that do show an increase are likely because those participants also reported using EC because they did not want to use condoms or another contraceptive method (Trussell et al., 2014).

One nationally-representative sample (from the 2006-2008 NSFG) examined the association between lifetime and recent EC use, and sexual behavior, including STI screening and diagnosis (Habel & Leichliter, 2012). Researchers found that EC recipients were no more likely than nonrecipients to have received STI counseling or screening despite greater numbers of sex partners in the past year; however, lifetime EC use (but not use of EC in the past year) was associated with receipt of a chlamydia diagnosis in the past year. This study was limited by a lack of data on temporality.

Contraceptive insurance mandates have not been demonstrated to affect STI rates (Gius, 2013). Similarly, evidence does not demonstrate that LARC usage increases STI rates—a clustered randomized trial of provider training designed to increase LARC uptake did not increase STI rates (El Ayadi et al., 2017). The lack of clear and consistent evidence of contraception's effect on STIs suggests that contraception access might not have a strong impact on sexual risk behavior, which is addressed as a separate outcome later in this report.

Individual Health Outcomes

Researchers have also examined individual health outcomes, primarily women's health outcomes and specifically repeat pregnancy, as a result of contraception use or contraceptive access; four studies and 14 literature reviews covered in this report addressed these outcomes.

Women's Health

Beyond pregnancy prevention, contraception has a number of health benefits and is often used by women for non-contraceptive purposes. In fact, 58% of oral contraception users rely on the pill at least in part for reasons other than preventing pregnancy, including for management of menstrual pain or menstrual regulation, acne, endometriosis, or other reasons (Jones, 2011). There is a wealth of research on these non-contraceptive health benefits; although most research focuses on hormonal methods, the copper IUD reduces the risk of endometrial cancer and cervical cancer (Bahamondes et al., 2015).

Research on health outcomes related specifically to the use of Combined Oral Contraceptive pills (COCs) have demonstrated improved cycle control and relief from menstrual symptoms, improved acne, improved bone health, reduction in premenstrual dysphoric disorder symptoms, prevention of ovarian, endometrial, and colorectal cancer, and reductions in maternal mortality. Adverse side effects are rare among healthy users, although there are a few contraindications for COC use (Brynhildsen, 2014; Dragoman, 2014; Havrilesky et al., 2013; Maguire & Westhoff, 2011).

A review of hormonal contraceptives (both COCs and progestin-only) documents evidence the above conditions as well as management of endometriosis, uterine fibroids, heavy menstrual bleeding, other bleeding disorders, polycystic ovarian syndrome, and migraines (Schrager et al., 2020). There are additional reviews available documenting benefits and risks of COCs and progestin-only contraceptives, including advice for clinical practice (Burke, 2011; Shulman, 2011).

Reviews of intrauterine devices' non-contraceptive benefits highlights decreased menstrual blood loss, improved dysmenorrhea, correction of iron deficiency, improved pelvic pain associated with endometriosis, and protection of the endometrium from hyperplasia (Fraser, 2013; Yoost, 2014).

The levonorgestrel intrauterine system (Mirena) has a range of non-contraceptive benefits for adolescents, including reduced menstrual bleeding, decreased dysmenorrhea and pelvic pain related to endometriosis, and menstruation suppression in teens with physical or developmental disabilities (Bayer & Hillard, 2013). The simulations modeling increased LARC uptake, discussed earlier in this report, also suggest decreased adverse maternal health outcomes, including a reduction of hypertension and gestational diabetes (Welti & Manlove, 2017). Similar to the child health outcomes from this model, though, these results come from an overall reduction of births rather than the rate of adverse outcomes.

Rapid Repeat Pregnancy

Rapid Repeat Pregnancy (RRP) is defined as a subsequent pregnancy between 1-2 years after a birth or pregnancy termination, with different studies varying in the cutoff point for measurement. A 2013 review of the literature found that adolescents who do not initiate a use of a LARC method after a pregnancy have up to 35 times the risk of RRP as their peers using LARC (Baldwin & Edelman, 2013).

Researchers examined adolescents in the Colorado Adolescent Maternity Program (CAMP) who gave birth and were eligible for immediate postpartum insertion of contraceptive implants (Han et al., 2014; Tocce et al., 2012). At 12 months postpartum, RRP had been significantly decreased among implant recipients, compared to control participants.

More recent studies have supported this review's findings. One analysis of adolescents found that those who received LARC postpartum were less likely to have a repeat pregnancy within two years (Damle et al., 2015). Researchers also found progestin-only pills *not* to be protective against a repeat pregnancy within 18 months of giving birth—but found that LARC usage did lower the risk for a subsequent pregnancy (Sackeim et al., 2019). Direct comparisons could be more easily made between studies if researchers used consistent definitions of RRP.

Public Economic Outcomes

Contraception's substantial effects on pregnancy and birth rates also have implications for economic outcomes at the population level, including societal costs and costs to health care payers and systems. Twelve studies included in this review examine public costs and cost savings related to contraception.

Publicly Funded Contraception and Family Planning Initiatives

A substantial body of literature has demonstrated the cost saving related to insurance coverage of contraception and publicly funded family planning programs. The decision-tree analysis mentioned earlier, which modeled denial of contraceptive insurance on the part of the employer, found that this refusal of coverage increased costs from the employer perspective (Canestaro et al., 2017). Researchers also estimated costs for family planning and LARC promotion programs; CFPI was calculated to have cost $1932 per averted birth—a low cost compared to other interventions (Kelly et al., 2020). Lindo and Packham's rough calculations are much higher at an estimated a cost of $13,531 per teen birth averted in 2009-2013—but that estimate does not take into account the subsequent years that LARC methods would still be effective or non-teen births averted (Lindo & Packham, 2017).

A cost-savings analysis of the Contraceptive CHOICE Project compared CHOICE participants to a comparison group modeled from women receiving care from the Missouri Title X program, simulating outcomes that would have occurred in the absence of CHOICE. Estimated cost savings to Missouri Medicaid were estimated at $5 million over the course of the program (Madden et al., 2018). Similar to other literature about the CHOICE Project, these cost savings might not be generalizable to other populations because participants might have self-selected into the study because of an interest in LARC methods.

Another study estimated the number of pregnancies averted by California's family planning waiver program, Family PACT, and compares those cost savings with the cost to provide each contraceptive method (Foster et al., 2009). All methods provided by Family PACT were found to be cost effective, with savings varying by method type, per $1 spent in services and supplies: implant and intrauterine contraceptives were found to have cost savings of more than $7.00; injectable contraceptives, $5.60; oral contraceptives, $4.07; the patch, $2.99; the vaginal ring, $2.55; barrier methods, $1.34; and emergency contraceptives, $1.43. These might be underestimates for LARC methods as their duration was conservatively capped at two years.

When estimating the effects of expanding Medicaid eligibility to higher-income women and clients whose benefits would otherwise expire, researchers calculated costs in addition to effects on birth rates: they estimate that each averted birth would cost $6,800 (Kearney & Levine, 2009).

One study examined potential costs and savings for expanding Emergency Medicaid coverage for immigrants in the U.S. for fewer than five years to include postpartum contraception (Rodriguez et al., 2010). Over a five-year period, the study estimated that this policy change would save $17,792 per woman at the societal level for future pregnancy costs and incur a loss of $367 for hospitals. For states where approximately half of immigrants remained in state for five years, state Medicaid would save $108 per woman. Regardless of contraceptive method selected, costs were saved by the state under this model.

LARC and a Changing Method Mix

Researchers developed an economic model to estimate potential cost savings from increased LARC uptake from a third-party payer perspective (Trussell et al., 2013). These are based on costs (to in-patient and out-patient hospital settings, and non-hospital settings) averted by reducing the number of births, abortions, miscarriages, and ectopic pregnancies. The study found that if 10% of women ages 20-29 years switched from oral contraception to a LARC method, total costs would decrease by $288 million per year. If 10% of women ages 20-29 years currently using short-acting reversible contraception or no method switched to LARC, savings were estimated at $436 million per year. These results might underestimate potential cost savings for several reasons: first-year failure rates are used, which might be higher than subsequent years of method use; 10% is used as a conservative estimate of users switching methods; and Medicare data are used in the model, which generally have lower costs that private payers (Trussell et al., 2013).

Child Trends modeled outcomes if nationwide data matched the contraceptive method mix following a LARC training intervention conducted by University of California, San Francisco researchers. The analysis found costs savings due to estimated substantial reductions in unintended pregnancy (Welti & Manlove, 2017). The study authors estimated that these changes to unintended pregnancy rates would save $12 billion dollars a year in public health care costs and cut the public costs of unintended pregnancy in half. Researchers examining outcomes for CAMP participants (discussed in the previous section), found that the reduction in repeat pregnancy associated with postpartum implant insertion was also associated with cost savings (Han et al., 2014). Although costs were higher at six months postpartum, for every dollar spent on the program, $0.79, $3.54, and $6.50 would be saved at 12, 24, and 36 months.

Emergency Contraception

As noted earlier in this report, access to Emergency Contraception (EC) has not been demonstrated to have significant impacts on population-level pregnancy or abortion. For this reason, the cost effectiveness of EC has not been established (Trussell et al., 2014).

Over-the-Counter and Pharmacist-Prescribed Access

Researchers estimated the proportion of low-income women at risk for unintended pregnancy who are likely to switch to an Over-the-Counter (OTC) contraceptive pill and associated costs and potential savings (Foster et al., 2015). Results showed that if OTC costs are low, OTC access could substantially increase oral contraceptive use and decrease unintended pregnancy. Savings to public insurance range from 1% to 6% if OTC contraception is provided without a copay and failure rates remain the same; with a $10 copay savings range from 3% to 10% (Foster et al., 2015).

One study found that the Oregon law change that allows pharmacist prescription of contraception (described in detail in an earlier section) also modeled cost savings (Rodriguez et al., 2019). This analysis estimated savings of $1.6 million in the policy's first two years (based on Oregon's Medicaid fee schedule).

Individual Economic Outcomes

In addition to cost savings on the societal level, the evidence also examines the effect of contraceptive access and use on individual's economic outcomes. Studies primarily focus on women's economic outcomes and demonstrates improvements due to contraceptive access. The economic studies discussed earlier—which use econometric analysis methods to examine historical policy changes—have measured the effects of the legality of contraception on the women who gained access to the pill, as well as access to federally-funded family planning programs. These focus on outcomes related to women's education, labor force participation, income, likelihood of living in poverty, and outcomes for the next generation (both as children and adults). These outcomes are measured at the population level, most often using U.S. Census

data. This body of work rarely includes analyses by key demographic variables, like race, and variation in outcomes for different groups are often obscured.

Limited self-report data from family planning clinic clients found that women commonly name economic reasons as motivation for using contraception, including financially supporting themselves or their families, pursuing education, and staying in the workforce (Frost & Lindberg, 2013). The remainder of this section, however, focuses on research examining changes in the 1960s and 1970s, as that constitutes the bulk of the literature on economic outcomes; this scan covers 12 studies and three literature reviews that fit this description, as well as one study using econometric methods to examine more recent policy changes. A separate body of research focuses on the economic outcomes of related predictors, including age at first birth, teenage childbearing, unintended pregnancy, and birth spacing; this research is reviewed elsewhere and excluded from this report (Sonfield et al., 2013).

Subgroup Analyses

Much of this literature does not stratify by race or other relevant demographic factors. When heterogeneity is examined, it is often in women's perceived "ability." In one study measuring wages, the increased earnings were found to be concentrated among women with higher IQ scores (Bailey et al., 2012). Although they might not be reliable as impartial measures of intelligence, IQ tests might have a cultural bias that result in them assessing some degree of privilege rather than ability alone (Ford, 2004). Similarly, one study finds significant associations among women attending more selective colleges—with college admissions also being affected by race and economic status among other factors (Steingrimsdottir, 2016). Thus, analyses by "ability" might be measuring individuals' resources and privilege rather than innate intelligence. Another study looks only at college-educated women, suggesting that their results might not be broadly generalizable (Goldin & Katz, 2002).

Key Findings

This literature finds positive outcomes for women's educational attainment (college enrollment and completion); an increase of women as a proportion of the workforce and their hours worked; an increase in the proportion of women making up professional careers, including medicine and law; and a decreased probability of living in poverty (Bailey, 2006; Browne & LaLumia, 2014; Edlund & Machado, 2015; Goldin & Katz, 2002; Hock, 2007). Because women pursued higher levels of education, wages dropped for women in their 20s, but women with access to the pill had substantially higher earnings by their 30s and 40s (Bailey et al., 2012).

For the subsequent generation, results are more nuanced. When contraception became legal, it was most accessible to more advantaged women. As these women were more able to delay pregnancy due to the pill, there were fewer births to higher-income women—so resulting cohorts were more likely to live in poverty in the short term (Ananat & Hungerman, 2012). Women with higher levels of education delayed births rather than reducing births altogether. In part, this likely reflects more advantaged women delaying pregnancy to pursue further education. As births were retimed, longer-run effects show more children were born into households with more highly educated mothers, and children were less likely to live in poverty.

Access to publicly funded family planning programs, unlike legal access to contraception, reduced childbearing in both the short and long run (M. Bailey, 2013; M. J. Bailey et al., 2014, 2018). Even into adulthood, this next generation saw a reduction of people living in poverty. These studies often include analyses by race, with effects found to be twice as strong in non-white compared to white households. Like many studies relying on older data, these explorations are limited: data is broken down by only white and non-white households.

Literature examining the effects of contraceptive insurance coverage—most often through mandated coverage of contraception—has mostly looked at fertility outcomes to date. However, there is also some evidence that contraceptive insurance coverage increases women's transition from non-employment into employment by 34% (Bahn et al., 2020). These outcomes are largest for women with children trying to re-enter the labor force, African American women, and Asian women.

Social Outcomes

Less frequently studied are social and behavioral outcomes of contraceptive use, including sexual desire and behavior, marital and relationship outcomes, and quality of life. Eleven studies and two literature reviews included in this report examine these topics.

Sexual Function and Behavior

The impact of contraception on women's sexual desire and experience of sex is not well studied, and a review demonstrated mixed results related to on women's libido (Burrows et al., 2012). However, there is evidence that some hormonal contraception is associated with sexual dysfunction, with mixed results based on route of administration and progestin component; nonuse of contraception might also be associated with sexual dysfunction and dissatisfaction (Casey et al., 2017). Further research is needed to understand how various forms of contraception affect women's sexual experiences.

Many of the studies examining pregnancy and STI rates also analyze changes to sexual activity and sexual risk behavior. Kearney and Levine's analysis of expanded Medicaid eligibility found no effect on sexual activity (2009). Research also does not support mandated private insurance coverage of contraception increasing sexual risk behavior (Gius, 2013).

Regarding EC access, there is some evidence of increased sexual risk behavior (such as unprotected sex and number of sexual encounters) as a result of increased access (Durrance, 2013; Mulligan, 2016; Zuppann, 2012). When examining only New England public high schoolers, researchers found that pharmacy access of EC decreased the probability of condom use by between 5.2% and 7.2% (Atkins & Bradford, 2015b). Other studies, however, find no evidence of increased sexual risk behavior as a result of EC access (Cintina & Johansen, 2015). When examining data on women ages 18 and over, researchers found mixed results: expansion of EC access at the national level was associated with reduction in overall sexual activity and multiple partnerships but not unprotected sexual activity; state policy, meanwhile, was associated with increased unprotected sex (Atkins & Bradford, 2015a). This study, however, did not use a quasi-experimental design, like others mentioned here, and therefore establishes associations rather than causal relationships.

Marriage and Family Formation

There is limited research into the effects of contraception on relationship formation. There is some evidence that early access to the pill in the 1960s and 1970s led to increased non-marital cohabitation but had no effects on marriage rates for women by age 29 years; these findings suggest that contraception access led more young people to use cohabitation as a tool for selecting a spouse (Christensen, 2012). One analysis of more recent data of EC access found that pharmacy access lowered single mother birth rates, increased sexual activity within relationships, increased the number of sexual partners, and delayed marriages (Zuppann, 2012).

Although research on the effects of contraception on marriage and family formation is limited, additional related research examines effects on relationships and marital stability from unintended pregnancy, teen childbearing, and other fertility predictors (Sonfield et al., 2013).

Quality of Life

Limited research has examined contraception's impact on Health-Related Quality of Life (HRQoL) in the U.S. One study explored associations between use of different contraceptive methods and mental and physical HRQoL (Williams et al., 2012). Contracepting women were more likely to have average or better mental HRQoL than non-contracepting women, but no differences were found in physical HRQoL. Women using DMPA were less likely to have average or better physical and mental HRQoL than women using combined oral contraceptives. This is an area in need of future research, as this study has a fairly small sample size (fewer than 800 women) and is a cross-sectional study that only shows associations between contraception use and quality of life rather than isolated effects of contraception.

RESEARCH GAPS AND IMPLICATIONS

Overall, the available evidence demonstrates a range of positive health, economic, and social outcomes related to contraceptive use and access. Evidence on public and individual health outcomes primarily assessed fertility and birth outcomes, as well as non-contraceptive outcomes, related to women's health—such as management of menstrual pain or menstrual regulation or prevention of ovarian, endometrial, and cervical cancers. Evidence on public and individual economic outcomes primarily focused on cost savings and cost effectiveness related to societal costs and costs to health care payers and systems as well as changes in women's economic outlooks related to increased opportunities for education and employment. Finally, evidence on social outcomes related to contraception focused on sexual desire and behavior, marital and relationship outcomes, and quality of life. The remaining sections summarize findings related to health, economic, and social outcomes and highlight remaining research gaps.

Public and Individual Health Outcomes

Outcomes Related to LARC

As demonstrated in this review, a growing body of research examines the fertility and related health outcomes of long-acting methods. The majority of studies examining the impact of LARC methods, though, use data from programs and initiatives that employ a tiered-effectiveness model of counseling. However, the field is shifting to favor more patient-centered approaches to care, research, and policy (Gomez et al., 2014). This shift is guided by a recognition of the United States' longstanding, insidious, and ongoing history of reproductive oppression of people of color, people living in poverty, people with disabilities, and others with (often intersecting) marginalized identities (Roberts, 1998; Stern, 2005). It is also guided by evidence of continued overt and subtle contraceptive coercion in clinical settings, as well as evidence from other fields of coercion resulting from performance measure implementation (Brandi et al., 2018; Gomez and Wapman, 2017). As this approach to contraceptive counseling becomes more widely accepted, future research should explore short- and long-term outcomes from interventions using patient-centered designs.

Impact on Breastfeeding

Research into the impact of contraception among breastfeeding women, including outcomes such as breastfeeding duration and infant growth, is limited and demonstrates mixed findings (Phillips et al., 2016; Tepper et al., 2016). Further research involving breastfeeding women is needed into longer-term infant outcomes, a range of hormonal methods (including the patch, ring, and injectables), and into progestin, particularly immediate postpartum IUD insertion.

Contraception and Mental Health

There is limited research on the relationship between mental health and contraception. Still, for women with common mental health conditions like depression and anxiety who want to avoid pregnancy, contraception can be important to mental wellbeing (Hall et al., 2015). Further research could explore the role of contraception in the management of depression and anxiety.

Outcomes Related to Unintended Pregnancy

The reduction of unintended pregnancy has served as a public health benchmark for measuring and improving women's health, is reflected in pregnancy planning paradigms in clinical practice, and historically been regarded as a proxy for women achieving their desired reproductive outcomes (L. E. Gavin et al., 2017). A growing body of literature has questioned the validity of the unintended pregnancy framework and suggested alternative ways of conceptualizing reproductive health and well-being (Aiken et al., 2016; Gomez et al., 2018). Outcomes related to this framework should be considered within this context as the science continues to develop and debates over appropriate measurement continues to unfold (Kost and Zolna, 2019; Potter et al., 2019).

Economic Outcomes

As made evident in the previous section, the majority of economic research in this area focuses on historic access to the pill. Most econometric studies regarding LARC methods, on the other hand, focus primarily on fertility outcomes. It would be beneficial to update the literature on economic outcomes to include more recent proxies for contraceptive access, including a wider range of methods and access (or cuts) to Title X and other publicly funded family planning programs. Further research should explore educational, workforce, income, and—when data allow—next generation effects of LARC and other methods. It will also be critical to explore the economic outcomes related to contraception within a broader sexual and reproductive health context to address the complex and multifaceted needs of individuals, particularly among communities of color.

Social Outcomes

As mentioned earlier in this report, contraception's effects on physical and mental quality of life are understudied. Existing research in this area demonstrated limited and fairly weak evidence; future research should focus on longitudinal study designs that can provide more context to potential associations between contraception and HRQoL as well as quality of life more broadly.

Research is also lacking in contraception's effects on sexual behavior. Research into expanded EC access has revealed mixed findings on sexual risk behavior. Further research would also provide needed insight on the relationship between contraception and women's sexual function and desire.

Contemporary Policies

As present-day changes to contraceptive access are less marked than those that occurred with legality of the pill in the 1960s and 1970s, more research is needed to investigate the effects of policies like contraceptive insurance mandates (and exemptions), changes to the Title X program and funding, changes to state family planning programs, OTC access to contraception, and others. Gaps remain in understanding the impact of policy change on sexual and reproductive health equity, patient experience accessing services, and implementation and adoption of relevant policy change across care settings. Researchers have begun to explore these policies' effects, and studies should continue to build evidence on the contraceptive and non-contraceptive outcomes.

Underutilized Approaches

This review focuses primarily on quantitative research, which makes up the majority of research on these topics. However, it is important to note that the effects of contraception cannot be viewed in a vacuum—women make decisions about pregnancy in the broader context of their lives and opportunities. Qualitative research to better understand how contraceptive users themselves see the benefits of birth control in their lives would be a valuable addition to this knowledge base. Engaging communities using approaches like community-based participatory research would be beneficial to this knowledge base, particularly when designing and evaluating pregnancy prevention initiatives that tend to target medically underserved populations.

Excluded or Underrepresented Populations

In the case of many studies using large, nationally-representative datasets, differing—and even opposing—trends among demographic groups might be obscured. Stratification of results by key factors like race/ethnicity, income, and age is crucial to understanding how contraceptive access impacts individuals of different backgrounds. Earlier studies of economic outcomes that have formed a foundational knowledge base do not always include differences by race, and when they do, they are limited by simplified breakdowns of white versus non-white. Given that some research points toward birth rates for Latina women differing from national trends, particular attention should be paid to Latina/Hispanic women's experiences with contraception and its fertility outcomes. There is also a lack of data around Indigenous women's experiences with contraception. This is a notable gap in the research given the history of contraceptive abuse among Indigenous women's on the part of the Indian Health Service (Krupinski, 2014; Rutman et al., 2012).

While much of the relevant literature looks only at women's outcomes, it should be noted that many of these benefits may apply to any individual who may become pregnant. There is also limited data on the contraceptive experiences of transgender men gender-nonconforming individuals. Existing research demonstrates that transgender men experience pregnancy, plan for future pregnancies, and often fear not being able to become pregnant as a result of hormone therapy (Light et al., 2018). Future research should include a broad range of gender identities of people who can become pregnant.

Little is known, too, about the contraceptive experiences and outcomes for women with disabilities; more data and higher-quality research is needed to understand the impact of various contraceptive methods on the lives of women with disabilities (Horner-Johnson et al., 2019).

CONCLUSION

There is a great deal of research on the contraceptive and non-contraceptive benefits of birth control. Beyond preventing unintended pregnancy, contraception has a range of health, economic, and social benefits for women and society more generally. Contraception offers a range of health benefits unrelated to pregnancy planning, including risk reduction for certain cancers; management of menstrual symptoms and bleeding and migraines; and other health conditions. Additionally, contraception has led to the improvement of women's economic outcomes related to workforce participation, income, education, and poverty. There is also strong evidence in cost-saving benefits in terms of public expenditures and third-party payers' costs. Less research explores social outcomes, such as family formation and quality of life, but evidence that does exist suggests contraception might be associated with these outcomes.

However, the quality of research varies by both topic area and study, as this report reviews a broad scope of literature and research designs. Stronger, causal impacts have been established in contraception's fertility and economic outcomes. That causal research, though, uses large-scale datasets and often misses trends and variation among demographic groups. Much of that literature also examines outdated changes

to contraceptive access, so generalizability to today's contraceptive access policies is limited. Conversely, the bulk of public health research relies on associations and, therefore, cannot identify causality. Future research should pay particular attention to communities most impacted by limited contraceptive access, contemporary policy and funding changes, and understudied outcomes. First, future research should focus on underserved communities and should stratify findings by race, age, and income to better understand the differential impacts of contraception. Additional conduct of qualitative research to better understand how contraceptive users themselves see the benefits of birth control in their lives add value to the existing evidence base. Researchers should also further explore short- and long-term outcomes of contemporary policy and funding changes as proxies for contraceptive access. Further research is also needed to understand more about the understudied outcomes of contraception. For example, more research is needed into the non-fertility outcomes related to LARC access, particularly regarding how they impact economic and social outcomes for contraceptive users when made accessible through person-centered approaches. Additional research into the social outcomes of contraception, such as quality of life, is also needed. Contraception's benefits have been well established in certain areas and its positive effects are clear; however, more research remains to be done in various methods, populations, and policies.

Key Takeaways from the Environmental Scan

- Beyond preventing pregnancy, contraception has a range of health, economic, and social benefits for women and society more generally.
- Researchers use a range of study designs and methodologies to measure the effects of contraceptive access and use on health, economic, and social outcomes, including randomized controlled trials, quasi-experimental study designs, and observational studies. Contraceptive access is often defined in these studies in terms of availability of services based on early legal access to contraception, accessibility of services, affordability of services, and acceptability of services.
- Future research is needed to understand the impacts of contraceptive access in communities most impacted by limited access, the short- and long-term effects of contemporary policy and funding changes as proxies for contraceptive access, and understudied holistic outcomes of contraception, such as quality of life.

APPENDIX: SEARCH TERMS

Concept	Search Terms
Contraception	Contraception Birth control LARC Contraceptive access IUD OR intrauterine device Implant
Benefits and outcomes	Economic Education Financial OR Fiscal Health Social Quality of life Wellbeing Empowerment Equity
Measurements	Effects Benefits Results Outcomes Consequences Impacts

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