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Do Expectant Mothers' Breastfeeding Plans Influence Provider Prenatal Contraceptive Counseling?

Lydia Furman, MD^{1,2}, Maria Shaker, MD^{1,3}, Kavita Shah Arora, MD, MBE^{1,4}

¹Case Western Reserve University, Cleveland, OH, USA

²University Hospitals Rainbow Babies and Children's Hospital, Cleveland, OH, USA

³University Hospitals MacDonald Women's Hospital, Cleveland, OH, USA

⁴MetroHealth Medical Center, Cleveland, OH, USA

Abstract

Background: Breastfeeding and optimal birth spacing are associated with improved maternal and infant health outcomes worldwide. Provision of contraceptive advice that is aligned with recommendations for breastfeeding has potential to maximize maternal and infant health. Although there is broad agreement regarding the breastfeeding compatibility of specific postpartum contraceptive methods, it is not known whether maternal breastfeeding intention influences prenatal provider contraceptive counseling.

Research aim: We aimed to determine if maternal feeding intention is considered by prenatal providers during contraceptive counseling.

Methods: This was a cross-sectional online author-created survey including all prenatal providers ($N = 40$) at two academic safety-net institutions in Cleveland, Ohio. Of 100 obstetrics/gynecology faculty members, 40 (40%) completed the survey, which included multiple-choice questions. Nominal and ordinal survey results were reported with percentages and frequencies, and categorical variables were compared using the Fisher exact test.

Results: Participants appropriately promoted breastfeeding-compatible postplacental intrauterine device placement, even though maternal feeding intention was specifically considered by just 12 (30%). Endorsed barriers to contraception for breastfeeding mothers included provider medical worries, patient concerns, and colleague resistance. Postplacental levonorgestrel intrauterine devices were recommended for all mothers by 92.5% of participants ($n = 37$). Recommendations regarding progestin-only and combined oral contraceptive pills were influenced by maternal breastfeeding versus formula-feeding intention.

Corresponding Author: Lydia Furman MD, Department of Pediatrics, University Hospitals Rainbow Babies and Children's Hospital, MS 6019, Room 784H, 11100 Euclid Avenue, Cleveland, OH 44106, USA., Lydia.Furman@uhhospitals.org.

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Supplemental Material

Supplementary material may be found in the "Supplemental Material" tab in the online version of this article.

Conclusion: Asking expectant women about their feeding intentions within each contraceptive discussion may create opportunities for shared decision making that can optimize perinatal outcomes for both mother and infant worldwide.

Keywords

breastfeeding initiation; lactational amenorrhea; maternal behavior

Background

Both breastfeeding and birth spacing contribute to attainment of optimal infant and maternal health outcomes (Sridhar & Salcedo, 2017). Exclusive breastfeeding through 6 months of age, followed by introduction of complementary feedings and continued breastfeeding for at least a year and then for as long as mother and infant desire, is recommended by a multitude of professional medical organizations and by the World Health Organization (American Academy of Pediatrics Section on Breastfeeding, 2012; American College of Obstetricians and Gynecologists, 2018). With full breastfeeding, both infants and mothers experience dose-dependent health benefits, including lowered risk of infections and sudden infant death syndrome (SIDS) for infants and reduction in risk of breast cancer and type 2 diabetes mellitus for mothers (Chowdury et al., 2015; Sankar et al., 2015). However, in the United States, national and local rates of breastfeeding exclusivity and continuation have not reached goals set by the U.S. Department of Health and Human Services (Office of Disease Prevention and Health Promotion, 2019). Additionally, in the United States, there are meaningful disparities by maternal race, age, education, and economic level (Centers for Disease Control and Prevention [CDC], 2018).

Rapid repeat pregnancy, especially with birth-to-pregnancy intervals less than 6 months, but also for intervals of 6 to 17 months, is a universal risk factor for poor outcomes, including preterm birth, low birth weight, babies who are small for gestational age, and stillbirth, and increases risk of infant mortality (Schummers et al., 2018; Sridhar & Salcedo, 2017). Worldwide, an estimated 44% of pregnancies in 2010 to 2014 were unintended (Bearak, Popinchalk, Alkema, & Sedgh, 2018). In the United States, 28.9% of women experience birth intervals shorter than 18 months, with demographic risk factors for rapid repeat pregnancy similar to those for not breastfeeding (Finer & Zolna, 2015; Thoma, Copen, & Kirmeyer, 2016). Especially for adolescents, prevention of rapid repeat pregnancy is a global public health priority due to the potential for lifelong maternal and child health effects (Holness, 2015; Norton, Chandra-Mouli, & Lane, 2017). Provision of contraceptive advice that is aligned with recommendations for breastfeeding and outreach to high-risk women therefore are both key to maximizing maternal and infant health worldwide.

The CDC and the World Health Organization (WHO) have published guidelines that address the methods and timing of contraception that are breastfeeding compatible (CDC, 2016; WHO, 2015). The guidance from these two bodies is largely in agreement but with meaningful recommended differences regarding timing of initiation postpartum for combined oral contraceptives and for medroxyprogesterone acetate injection, due to limited research and concerns about effect on breastfeeding and milk supply. Although LAM

(lactational amenorrhea method) is widely acknowledged as an extremely effective contraceptive method, its potential duration of effectiveness extends only 6 months, and it may be clinically unreliable in the United States given low rates of exclusive breastfeeding at 6 months in the United States (CDC, 2018). Both CDC and WHO, however, support postplacental intrauterine device (IUD) insertion for breastfeeding mothers, either with no restrictions (copper IUD) or because advantages generally outweigh risks (levonorgestrel-releasing IUD). Among women who are at risk both for not attending a postpartum visit (PPV) and for rapid repeat pregnancy, postplacental IUDs have meaningful advantages for avoiding unwanted pregnancy and for promoting birth spacing and are compatible with breastfeeding (Whitaker & Chen, 2018). Postpartum mothers who are discharged home may face many barriers to returning for contraception, including loss of insurance, lack of transportation, inadequate support systems, and new childcare responsibilities (Masho et al., 2018; Wilcox, Levi, & Garrett, 2016). Low rates of PPV attendance and low uptake of postplacental IUDs among high-risk publicly insured women in the United States and among women in low- and middle-income countries worldwide increase the urgency of understanding barriers to this form of breastfeeding-compatible contraception (Boulet et al., 2016; Cleland, Ali, Benova, & Daniele, 2017; Harney, Dude, & Hader, 2017; Henderson et al., 2016). We and others have considered the possibility that prenatal provider counseling may be an unintentional barrier to uptake of postplacental IUDs, (Holden et al., 2018; Moniz et al., 2017; Olson et al., 2018).

Prior researchers have focused on provider barriers related to device access, reimbursement, and knowledge and attitudes with respect to postplacental IUD provision but have not considered whether provider contraceptive counseling is influenced by maternal feeding plans (Holden et al., 2018; Moniz et al., 2017; Olson et al., 2018). We aimed to determine if maternal feeding intention is considered by prenatal providers during contraceptive counseling and to identify any provider barriers to provision of postplacental IUDs, specifically among mothers who plan to breastfeed. The main research question was whether prenatal providers give different prenatal contraceptive counseling to expectant women who plan to breastfeed, as compared to those who plan to feed formula.

Methods

Design

The study was an anonymous cross-sectional survey study conducted electronically. We chose this design for participant convenience and confidentiality. The institutional review boards of both University Hospitals Cleveland Medical Center and the MetroHealth System approved the study.

Setting

We surveyed prenatal providers at the two Cleveland hospitals serving predominantly publicly insured expectant and delivering women. Cleveland is a city in the northeast area of Ohio with 383,793 residents, of whom 50.4% are African American, 35.2% live in poverty, 41.1% are not employed, and 79.2% of those ages 25 or older have a high school or higher education (U.S. Census Bureau, 2018). Hospitals MacDonald Women's Hospital (UH) and

MetroHealth Medical Center (MH) are academic institutions affiliated with Case Western Reserve University School of Medicine that serve as safety-net hospitals on the east and west sides of Cleveland, respectively. Both hospitals have breastfeeding-supportive maternity practices; UH is designated Baby-Friendly and MH is pursuing Family-Friendly designation.

In the state of Ohio, at the time of the survey, public insurance did cover the cost of postplacental IUD insertion as a separate procedure in addition to obstetrical care but did not cover the cost of a postdelivery etonogestrel implant because the device was not Food and Drug Administration approved for this insertion timing. Coverage by private insurance varies, may require preauthorization, and is not consistent. Funding mechanisms for the devices vary by institution.

This work was conducted in parallel with patient- and partner-oriented surveys exploring barriers to postplacental IUD placement among low-income, predominantly African American expectant women and fathers/partners in Cleveland.

Sample

Prenatal providers practicing at either UH or at MH were invited to participate. Eligible providers included physicians, certified nurse midwives, advanced practice nurses, and physician assistants who provide prenatal care. A sample size calculation was not conducted due to the exploratory, convenience-sample nature of the survey. All faculty in the Obstetrics and Gynecology departments at both hospitals were invited to participate. Of 102 obstetrical-gynecology faculty members at the two institutions, two were excluded (coauthors) and 41 responded, of whom 40/100 (40% of all those invited) were prenatal providers who completed the survey. The response rate and sample size were within the range expected for online surveys and were considered sufficient to conduct an analysis (Nulty, 2008).

Measurement

The 25-question survey, “Your Opinions About Postpartum Pre-Discharge LARC (Long Acting Reversible Contraception),” was designed specifically for this study since literature review did not identify a validated survey relevant to the research question. Psychometric properties for the survey are thus not available. Previously reported pertinent domains include personal attitudes and preferences; provider knowledge; logistical barriers, including reimbursement; and influences of colleagues (Holden et al., 2018; Moniz et al., 2017; Olson et al., 2018). Limited demographic information was also obtained from survey participants. The survey is available online in the Supplemental Materials and may be used by other researchers.

Demographic variables collected included those hypothesized as relevant to the study aim: age, years in practice, participant degree, and populations served (income mix and geographic location). Participants were also asked their hospital affiliation in case striking practice differences by site emerged in the data.

The opening questions were about LARC in general in order to frame the survey and to avoid any perception of social pressure regarding the importance of breastfeeding. These categorical questions asked the participant's opinion regarding whether the number of women receiving LARC, first in general and then in hospital postdelivery, was "too few," "just right," "too many," or "not sure," and followed with a question about reimbursement scenarios (for different LARC and insurance types). The main research question, whether providers offer different prenatal contraceptive counseling to expectant women planning to breastfeed as compared to those planning to formula feed, was directly asked in two questions. The first was "If a pregnant woman told you she plans to breastfeed, would your recommendations for contraception be different than if she told you she was undecided or planning formula?" with the two possible dichotomized response options of "Yes or usually different" and "No or hardly ever different." The second was "Does your own general prenatal counseling about postpartum contraception for all mothers depend on any of these? (Please click all that apply)," which had multiple nominal responses possible, including maternal preference, maternal insurance, parity, breastfeeding intention, income level, history of rapid repeat pregnancy, race-ethnicity, age, and compliance with prenatal care/number of missed prenatal or other visits.

Participants were asked to respond for each of multiple ordinal contraceptive options at two different time points (in hospital and PPV) to the following:

When counseling about postpartum contraception, can you please check options you recommend (or would recommend if available) for an expectant woman who plans to breastfeed versus an expectant woman who plans to formula feed?
(Assume no known risk for venous thromboembolism and no insurance barriers.)

This was followed by "Of these methods above, have you experienced any resistance from colleagues about use in a breastfeeding mother? Please click box if yes," with a list of nominal choices available. Finally, we asked, "What are your main concerns about contraception and breastfeeding?" with eight possible nominal options, including "I have no concerns"; and "Are there any additional barriers to promoting postplacental IUDs when counseling a mother who intends to breastfeed? Please click all that apply," with eight possible nominal options, including, for example, "Advice she has found while Internet searching" (please see online Supplemental Materials for details). For multiple-response questions, participants could select as many choices as they desired; for polar (yes/no) questions, only a single response was possible.

We asked participants whether they believed placement of each of the devices (postdelivery IUD and etonogestrel implant) was covered by public versus private insurance, with nominal options of "yes," "no," and "not sure."

Data Collection

Informed consent with signature waiver was obtained from all participants, with the written explanation of the research as the first "page" of the survey so the choice to participate or decline participation was clear. The study was conducted between January and March 2018. The survey was sent electronically to potential participants via the Research Electronic Data Capture system (REDCap), which is a secure web application for building and managing

data (Harris et al., 2008). Participant confidentiality was protected by obtaining no identifying information; the anonymous data were secured at all times from collection through analysis within the University Hospitals REDCap system.

Data Analysis

Proportions and percentages were used to describe sample characteristics. We compared categorical variables, specifically the timing and type of participant-recommended contraception by maternal feeding intention, using the Fisher exact test (online Fisher exact test calculator at Social Science Statistics; <https://www.socscistatistics.com/>). A significance level of $p < .05$ was set a priori.

Results

A larger proportion of MH ($n = 26$; 68%) than UH ($n = 12$; 32%) participants responded to the survey (two participants did not identify their hospital). Thirty (75%) were physicians, three were advanced practice nurses, three were nurse midwives, two held both degrees, and two were physician assistants. One third of those responding ($n = 12$; 33%) had been in practice for 0 to 5 years, six (17%) for 6 to 10 years, six (17%) for 11 to 20 years, and 12 (33%) for >20 years. Twenty-two (58%) endorsed serving a “mainly low-income” population, and 15 (39%) also said they serve a “mainly inner-city/urban” population. The majority of participants ($n = 33$; 82.5%) said that “in general too few” women receive a LARC, and a smaller number ($n = 27$; 67.5%) thought too few women receive a LARC when considering only in-hospital postdelivery placement.

In response to the key question, “If a pregnant woman told you she plans to breastfeed, would your recommendations for contraception be different than if she told you she was undecided or planning formula?” 18 participants (45% of respondents) said, “Yes or usually different,” versus the alternative, “No or hardly ever different,” with no significant difference ($p = 1.0$) by hospital site. In response to the query, “Does your own general prenatal counseling about postpartum contraception for all mothers depend on any of these?” participants endorsed maternal factors as presented in Table 1. However, of those 18 who responded initially that their counseling would differ by maternal feeding intention, six (33%) did not rank “breastfeeding intention.” Thus 12 (30% of respondents) verified their endorsement of different contraceptive counseling by maternal feeding intention. Of these 12 individuals, eight (66.7%) had an MD/DO/MBBS degree, and years in practice and populations served were each evenly distributed over categories; due to the small number, statistical analysis would not be appropriate, but no demographic features were notable.

Table 2 presents participant recommendations of individual contraceptive methods for women intending to breastfeed versus those intending to formula feed. The top three options recommended most frequently were the same for mothers intending to breastfeed as for those intending to formula feed: (a) postplacental levonorgestrel IUD, (b) levonorgestrel IUD to be placed at PPV, and (c) postplacental copper IUD. Also frequently recommended for mothers intending to breastfeed was progestin-only pills to start postpartum in hospital, with medroxyprogesterone acetate injection (Depo-Provera) as a bridge to PPV also recommended for mothers intending to formula feed. There was a statistically significant

difference by maternal feeding intention in the number of participants who would recommend other methods. Notably, significantly fewer participants would recommend combined oral contraceptives to start at the PPV for mothers who are breastfeeding as compared to formula feeding ($p < .0001$). On the other hand, significantly more participants would recommend progestin-only pills either to start in hospital or at the PPV for breastfeeding versus formula-feeding mothers (each $p < .0001$). By comparison, there was no significant difference by feeding choice in respondents' endorsement of postplacental placement of either the levonorgestrel or copper IUD.

Barriers pertinent to providing contraception to a breastfeeding mother are presented in Table 3, which summarizes the three survey questions regarding (a) participants' own concerns, (b) additional barriers identified, and (c) methods facing resistance from colleagues. Participants' own main concerns regarding contraception and breastfeeding include the top three concerns of (a) decrease in milk supply with estrogen-containing contraception, (b) reliability or compliance of the patient, and (c) unintended pregnancy. Perceived barriers to promoting postplacental IUDs when counseling a mother who intends to breastfeed included (a) advice she has received from friends or family, (b) advice she has received while searching the Internet, (c) her concerns about perforation or pain with an IUD, and (d) her concerns about IUD expulsion rates when placed postplacentally. Finally, 30 respondents (75%) reported "resistance from colleagues" regarding use of one or more methods in a breastfeeding mother. The methods receiving mentions from 50% or more of participants for facing resistance from colleagues included (a) starting combined oral contraceptives at the PPV and (b) Depo-Provera as a bridge to the PPV.

Regarding insurance coverage, 31 (77.5%) of surveyed participants correctly thought a postplacental IUD was reimbursed by public insurance, whereas 20 (50%) incorrectly believed that a postdelivery etonogestrel implant was covered by public insurance. Fifteen percent of participants ($n = 6$) thought there was no insurance scenario under which either a postplacental IUD or etonogestrel implant was covered.

Discussion

We found that just 30% of prenatal provider participants serving a predominantly publicly insured urban population clearly identified maternal breastfeeding intention as a factor in their prenatal contraceptive counseling, with other factors cited more frequently. Factors beyond maternal feeding intention may influence counseling. Providers may be focused on birth spacing as the key element of their counseling, and their recommendation of LARC methods may be anchored on optimizing maternal health through prevention of rapid repeat pregnancy. Research is needed to better understand how prenatal providers prioritize and operationalize their prenatal contraceptive counseling and then to understand how maternal breastfeeding intention intersects with this counseling. Prenatal providers in different settings throughout the world may have different approaches and values, and local availabilities of postplacental methods, including IUDs and implants, are likely to vary, so setting-specific factors will need to be thoughtfully identified. Breastfeeding may or may not be the cultural norm in different locales, and the local availability of breastfeeding support will also need to be considered. Obstetrical providers worldwide have an enormous

opportunity to influence the health of mothers and their infants via prenatal counseling that promotes breastfeeding-compatible contraception, and research on effective strategies and approaches is urgently needed.

We sought to compare our findings with the literature on this topic; however, we could not identify any published studies that considered maternal feeding intention as a potential factor affecting prenatal contraceptive counseling. Previously identified barriers to postplacental LARC placement include inadequate device availability; inadequate procedure reimbursement; lack of training to place postpartum IUD, including lack of knowledge regarding correct timing; patient lack of interest; and lack of counseling time (Holden et al., 2018; Moniz et al., 2017; Olson et al., 2018). In this study, we focused specifically on barriers to contraception for breastfeeding mothers, and although participants did not note these issues, they did report multiple other barriers to contraception for breastfeeding mothers, including potential medical issues, patient concerns, and colleague resistance.

Limitations

Study limitations include the small sample size, use of a survey that was not previously validated, and failure to include the vaginal ring as an option. We acknowledge that this was a pilot study and that the response rate of 40% and small sample size raise the possibility of a Type II error, and thus it is possible that findings identified as nonsignificant are actually significant. It is possible that this survey has underestimated the proportion of providers who directly consider the influence of breastfeeding in their prenatal contraceptive counseling. The results may be biased both by which providers chose to participate versus those who did not and by inclusion of participants from both a Baby-Friendly-designated birthing hospital and a birthing hospital not yet Baby-Friendly designated. We specifically utilized an anonymous design in order to reduce response biases, including that of social desirability. However, given the prominence placed in the field on prevention of rapid repeat pregnancy, LARC for contraception, and breastfeeding, it is possible that responses may be skewed toward these answers and not reflect actual practice. An additional limitation is that because the study was performed in an academic safety-net environment, the results cannot be generalized beyond this setting.

Conclusion

Both patient-centered barriers and colleague resistance influence prenatal providers' breastfeeding-related contraception counseling, and thus additional research is needed to identify and support providers who provide patient-centered breastfeeding-supportive contraceptive counseling and to examine ways that this approach might be shared and considered by other providers in multiple other settings. Promotion of breastfeeding-compatible postplacental contraception benefits mothers worldwide. By asking expectant women about their feeding intentions within the contraceptive discussion, prenatal providers may create an opportunity for shared decision making that optimizes perinatal outcomes for both mother and infant. Research in settings both among high-risk populations in the United States and in low- and middle-income countries is needed to identify patient-centered ways to counsel expectant women regarding breastfeeding-compatible contraceptive options.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Key Messages

- Provision of contraceptive advice that is aligned with recommendations for breastfeeding has potential to maximize maternal and infant health, but it is not known whether maternal breastfeeding intention impacts prenatal provider contraceptive counseling.
- Prenatal providers appropriately promoted breastfeeding-compatible postplacental intrauterine device placement, even though maternal feeding intention was specifically considered by just 30%. Endorsed barriers to contraception for breastfeeding mothers included provider medical worries, patient concerns, and colleague resistance.
- Asking expectant women about their feeding intentions may optimize prenatal contraceptive counseling.

Table 1.

Factors on Which Participants' General Prenatal Counseling on Postpartum Contraception for All Mothers Depends ($N = 40$).

Factor	<i>n</i> (%)
Compliance with prenatal care/number of missed prenatal or other visits	25 (69)
Maternal history of prior rapid repeat pregnancy	22 (61)
Maternal preference	19 (53)
Maternal breastfeeding intention	18 (50)
Maternal age	8 (21)
Maternal parity	17 (47)
Maternal insurance	15 (42)
Maternal income level	2 (6)
Maternal race-ethnicity	0 (0)

Note: Participants were able to endorse more than one response to each survey item, so frequencies are not mutually exclusive.

Table 2.

Providers' Contraceptive Recommendations by Maternal Feeding Intention ($N = 40$).

Type and Timing of Contraception	Mother Plans BF, n (%)	Mother Plans FF, n (%)	Did Not Respond, n (%)
Postplacental copper IUD	28 (70.0)	26 (65.0)	13 (32.5)
Postplacental levonorgestrel IUD	36 (90.0)	37 (92.5)	3 (7.5)
Postplacental etonorgestrel implant ^a	15 (37.5)	15 (37.5)	25 (62.5)
Progestin-only pills to start in hospital ^b	36 (90.0)	20 (50.0)	4 (10.0)
Medroxyprogesterone acetate bridge to PPV	32 (80.0)	35 (87.5)	5 (12.5)
LAM as bridge to PPV ^b	22 (55.0)	3 (10.0)	19 (47.5)
Copper IUD to place at PPV	34 (85.0)	33 (82.5)	6 (15.0)
Levonorgestrel IUD to place at PPV	36 (90.0)	36 (90.0)	4 (10.0)
Etonorgestrel implant to place at PPV	33 (82.5)	32 (80.0)	7 (17.5)
Progestin-only pills to start at PPV ^b	27 (67.5)	12 (30.0)	13 (32.5)
Combined oral contraceptives start at PPV ^b	13 (32.5)	33 (82.5)	7 (17.5)

Note: BF = breastfeeding; FF = formula feeding; IUD = intrauterine device; LAM = lactational amenorrhea method; PPV = postpartum visit.

^aSurvey instructed providers to skip question if not an option at their facility.

^bDifference by maternal feeding intention ($p < .001$); others not significantly different.

Table 3.

Barriers Reported by Participants Concerning Contraception for Mothers Who Intend to Breastfeed.

Barrier	<i>n</i> (%)
Providers' own concerns (<i>n</i> = 38 ^a ; 95%)	
Decrease in supply with estrogen-containing contraception	27 (71)
Reliability and compliance of patient	18 (47)
Risk of unintended pregnancy	17 (45)
Commitment to exclusive breastfeeding	8 (21)
No concerns	6 (16)
Decrease in supply with progestin-containing contraception	5 (13)
Increased risk of IUD perforation or expulsion	4 (10)
Postpartum depression	2 (5)
Maternal concerns about postplacental IUD (<i>n</i> = 36 ^b ; 90%)	
Advice she has received from family or friends	31 (86)
Advice she has found while Internet searching	28 (78)
Her concerns about perforation or pain with an IUD	21 (58)
Her concerns/knowledge about postplacental IUD expulsion rates	19 (53)
Her concerns/perception that milk supply will be decreased with an IUD	12 (33)
Advice she has received from other health professionals	11 (31)
Cost of the device/uncertainty about insurance coverage	10 (28)
Her concerns about infertility with IUD use	10 (28)
Colleague expressed resistance to this method (<i>n</i> = 30 ^c ; 75%)	
Combined oral contraceptives start at PPV	18 (60)
Medroxyprogesterone acetate as bridge to PPV	15 (50)
Progestin-only pills to start in hospital	8 (27)
LAM (lactational amenorrhea method) as bridge to PPV	3 (10)
Postplacental copper IUD	2 (7)
Postplacental levonorgestrel IUD	2 (7)
Postplacental etonorgestrel implant	1 (3)
Levonorgestrel IUD to place at PPV	1 (3)
Progestin-only pills to start at PPV	1 (3)
Etonorgestrel implant to place at PPV	1 (3)
Copper IUD to place at PPV	0 (0)

Note: Participants were able to endorse more than one response to each survey item, so frequencies are not mutually exclusive. IUD= intrauterine device; PPV= postpartum visit.

^aTwo participants did not reply to survey item.

^bFour participants did not reply.

^cTen participants did not reply.