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Long-Acting Reversible Contraception Initiation With a 2- to 3-Week Compared With a 6-Week Postpartum Visit

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OBJECTIVE: To evaluate whether a department policy changing the scheduling of the postpartum visit from 6 weeks to 2–3 weeks after delivery is associated with higher long-acting reversible contraception initiation at the postpartum visit.

METHODS: We conducted a quasiexperimental before–after study to evaluate long-acting reversible contraception initiation, specifically an intrauterine device or contraceptive implant, at the postpartum visit between women scheduled for follow-up at 6 weeks (before policy change) and 2–3 weeks after delivery (after policy change). Secondary outcomes included postpartum visit completion, overall contraception initiation at the postpartum visit, overall contraceptive use at 6 months after delivery, and repeat pregnancies by 6 months postpartum. We obtained delivery and postpartum information using the electronic medical record and contacted participants 3 and 6 months after delivery to assess contraception use and repeat pregnancies.

RESULTS: We enrolled 586 participants between December 2014 and November 2015, of whom 512 women (256 in each cohort) continued to meet eligibility criteria after delivery. Long-acting reversible contraception initiation rates at the postpartum visit were lower in the 2- to 3-week (16.5%, 95% CI 12.2–21.8) compared with the 6-week group (31.1%, 95% CI 25.2–37.7, $P<.01$), primarily as a result of patient and health care provider preferences for delaying intrauterine device insertion to a later visit. More women completed a scheduled 2- to 3-week postpartum visit (90.2%, 95% CI 86.0–93.3) compared with a 6-week visit (81.6%, 95% CI 76.4–85.9, $P<.01$). Deferral of any contraception initiation was higher in the 2- to 3-week group (27.3%, 95% CI 21.9–33.4) compared with the 6-week group (15.8%, 95% CI 11.5–21.4, $P<.01$), but there were no differences in overall contraceptive use patterns at 6 months postpartum. No intrauterine device perforations or expulsions were observed in women who underwent insertion at 2–3 weeks postpartum. Five pregnancies were reported in each cohort by 6 months after delivery.

CONCLUSION: Scheduling a visit at 2–3 weeks after delivery was not associated with increased long-acting reversible contraception initiation at this visit despite higher postpartum visit attendance.

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The optimal timing of postpartum long-acting reversible contraception (LARC) initiation, especially intrauterine device (IUD) insertion, remains uncertain.

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Attendance rates at the 6-week postpartum visit are variable with as many as 33% of prenatal care recipients not returning for postpartum care.[1] Postplacental IUD insertion, which refers to IUD insertion within 10 minutes of placental delivery, is one potential way to decrease rapid repeat pregnancies.[2] However, expulsion rates are as high as 27% at 6 months postpartum with postplacental IUD insertion compared with 1–4% with interval insertion at 4 to 6 weeks after delivery.[3–7]

A postpartum visit at 2–3 weeks after delivery presents another potential opportunity for IUD insertion. Recent studies have demonstrated the feasibility and acceptability of IUD insertion at 2 and 3 weeks postdelivery with expulsion rates of 3–4% at 6 months postpartum.[8,9] Women are more likely to attend an earlier postpartum visit within 3 weeks after delivery,[10] and this increased attendance creates earlier opportunities for contraceptive counseling and LARC provision. Furthermore, an earlier postpartum visit allows for timely assessment of the physical and emotional well-being of mothers, opportunity to address breastfeeding, and time to reschedule missed appointments.[11]

Given these potential benefits, the University of California, Davis Department of Obstetrics and Gynecology planned to implement a policy to change the timing of the scheduled postpartum visit from 6 weeks to 2–3 weeks after delivery. We designed this study to coincide with the planned policy change to assess postpartum health outcomes, primarily LARC initiation, with an earlier visit.

MATERIALS AND METHODS

In this quasiexperimental before–after study, we evaluated outcomes in women enrolled before and after the department implemented a clinic policy to change the timing of the scheduled postpartum visit from 6 weeks to 2–3 weeks after delivery. We consented women to participate in a prospective study assessing postpartum health outcomes over 6 months after delivery. The University of California, Davis institutional review board approved this study.

We approached women receiving prenatal care at the two Sacramento campus clinics for study participation. We included women if they were 28 weeks of gestation or greater at the time of enrollment, planning to deliver and return for postpartum care at one of these two clinics, and planning to delay subsequent pregnancy for at least 1 year. We excluded women who required assisted reproductive technologies to achieve the index pregnancy or planned vasectomy as their postpartum contraceptive method.

After informed consent, we obtained baseline demographic and medical information. We obtained delivery information through chart review in the electronic medical record. After each participant's delivery, we excluded women who received sterilization or hysterectomy before their postpartum visit, had an IUD or implant placed during the delivery hospitalization, or did not deliver at our institution. We collected postpartum visit information through chart review and called participants at 3 and 6 months after delivery to complete a 10- to 15-minute telephone questionnaire assessing general health issues, contraception use, satisfaction with the timing of the postpartum visit, breastfeeding status, repeat pregnancies, and pediatrician visit completion. Participants did not receive any remuneration for participation.

The primary outcome of the overall study was LARC initiation at the postpartum visit. Secondary outcomes included postpartum visit completion, LARC use at 3 and 6 months postpartum, complications with IUD insertion at 2–3 weeks and 6 weeks after delivery, overall contraception initiation at the postpartum visit and contraceptive use over 6 months, satisfaction with timing of the postpartum visit, breastfeeding continuation rates at 3 and 6 months postpartum, and pediatrician visit completion. In this article, we focus on findings related to contraceptive use, including the primary outcome of LARC initiation at the postpartum visit and secondary outcomes of postpartum visit follow-up rates by 12 weeks after delivery, overall contraception initiation at the postpartum visit, resumption of intercourse before the postpartum visit, participant-reported contraceptive use at 6 months postpartum, and repeat pregnancies by 6 months postpartum.

We estimated the sample size based on the primary outcome of the proportion of women who initiated LARC at the postpartum visit. Institutional data review for the 3 months preceding study development demonstrated a baseline LARC initiation rate of 15.1% at the postpartum visit. Assuming a 66% increase in LARC initiation to 25% among women scheduled for an earlier postpartum visit, we estimated a sample size of 256 participants per group using an α of 0.05 and power of 0.80.

The department implemented the policy change in June 2015 once 256 participants had delivered and did not meet postdelivery exclusion criteria. We continued enrolling women into the study after the policy change until 256 participants met criteria for continued study participation postdelivery. Before implementing the policy change, the department held meetings with physicians, nurses, and administrative support staff to provide education on the expected changes associated with an earlier postpartum visit.

Department physicians agreed to provide comprehensive postpartum care at 2–3 weeks after delivery, including offering LARC insertions.

We used REDCap electronic data system for data management[12] and SPSS 24 to perform descriptive statistics and comparisons between groups with χ^2 and Fisher exact tests for categorical outcomes and Student *t* tests for continuous outcomes. We considered a *P* value of <.05 as significant.

RESULTS

We recruited women for study participation between December 2014 and November 2015. We enrolled 586 participants, of whom 74 did not meet all eligibility criteria (Fig. 1). There were no differences in the completion of telephone follow-up at 3 months (86.3%, 6-week group; 86.3%, 2- to 3-week group; *P*=1.0) and 6 months after delivery (73.8% and 78.5%, respectively, *P*=.25). Baseline demographic and obstetric characteristics did not differ between the two cohorts, except for age (Table 1).

Both groups demonstrated similar desire for LARC at the postpartum visit, but women in the 2- to 3-week group had lower rates of LARC initiation at the initial postpartum visit compared with those in the 6-week group (Table 2). Patient and health care provider preferences accounted for more delays in IUD insertion at 2–3 weeks (84.6%, 95% CI 70.3–92.8) compared with 6 weeks postpartum (33.3%, 95% CI 16.3–56.3, *P*<.01) (Table 3). By 6 months postpartum, there were no differences in type of contraceptive method used between both groups with most women relying on a LARC method (Table 4).

More women attended their postpartum visit when scheduled at 2–3 weeks after delivery (90.2%, 95% CI 86.0–93.3) compared with 6 weeks after delivery (81.6%, 95% CI 76.4–85.9, *P*<.01). The median number of days between delivery and postpartum visit attendance was 43 days (range 16–63 days) in women scheduled for a 6-week visit and 18 days (range 8–70 days) in those scheduled for 2–3 weeks postpartum. More couples resumed intercourse before the postpartum visit in the 6-week group (16.1%, 95% CI 11.3–22.3) compared with the 2- to 3-week group (3.3%, 95% CI 1.4–7.2, *P*<.01).

No IUD perforations occurred based on participant report and chart abstraction. Among 38 women in the 6-week cohort who had an IUD inserted within 56 days after delivery with follow-up through 6 months postpartum, one participant requested removal of her

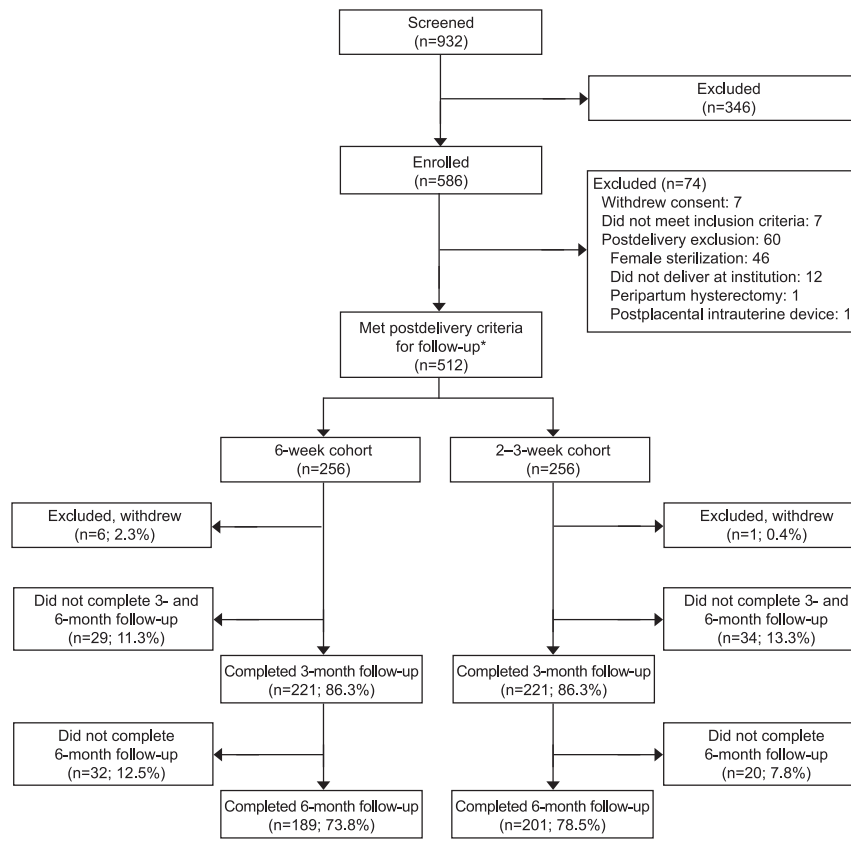

Fig. 1. Participant flow diagram for women scheduled for 6-week and 2- to 3-week postpartum visits. *In this quasiexperimental before–after study, the postpartum scheduling policy change took place once 256 women met postdelivery criteria in the 6-week cohort. Enrollment continued until 256 women met postdelivery criteria in the 2- to 3-week cohort.

Chen. Earlier Postpartum Visit and Contraception. Obstet Gynecol 2017.

Table 1. Demographic and Obstetric Characteristics of Women Scheduled for a 6-Week or 2- to 3-Week Postpartum Visit

Characteristic	6 Wk Visit (n=256)	2–3 Wk Visit (n=256)	*P*
Age (y)	28.9±5.2	30.3±5.5	<.01*
Hispanic ethnicity	74 (28.9)	71 (27.7)	.85†
Race			.58‡
White	171 (66.8)	169 (66.0)	
Black	24 (9.4)	27 (10.5)	
Asian	31 (12.1)	35 (13.7)	
Native American and Pacific Islander	14 (5.5)	7 (2.7)	
Other§	16 (6.3)	18 (7.0)	
Education			.17‡
Did not complete high school	15 (5.9)	21 (8.2)	
High school graduate	36 (14.1)	39 (15.2)	
Some college	84 (32.8)	71 (27.7)	
College graduate	59 (23.0)	77 (30.1)	
Graduate school	62 (24.2)	48 (18.8)	
Work status			.78‡
Full-time	120 (46.9)	131 (51.2)	
Part-time	35 (13.7)	34 (13.3)	
Unemployed	40 (15.6)	31 (12.1)	
Homemaker	45 (17.6)	46 (18.0)	
Full-time student	16 (6.3)	14 (5.5)	
Insurance			.79‡
Public	70 (27.5)	77 (30.2)	
Private	171 (67.1)	165 (64.7)	
Military	14 (5.5)	13 (5.1)	
Relationship status			.56‡
Single	20 (7.8)	26 (10.2)	
Partnered, living with partner	218 (85.5)	210 (82.0)	
Partnered, not living with partner	17 (6.7)	20 (7.8)	
Gravidity			.18‡
1	91 (35.5)	69 (27.0)	
2	72 (28.1)	79 (30.9)	
3	44 (17.2)	48 (18.8)	
4	20 (7.8)	30 (11.7)	
5	17 (6.6)	12 (4.7)	
6 or more	12 (4.7)	18 (7.0)	
Parity			.63‡
0	129 (50.4)	122 (47.7)	
1	84 (32.8)	83 (32.4)	
2	26 (10.2)	26 (10.2)	
3 or more	17 (6.6)	25 (9.8)	
Prior miscarriage	65 (25.4)	86 (33.6)	.05‖
Prior abortion	40 (15.6)	56 (21.9)	.09†
Prior cesarean delivery	40 (15.6)	41 (16.0)	1.0†
Pregnancy planned	163 (63.7)	162 (63.3)	1.0†
Planning postpartum LARC	59 (23.0)	42 (16.4)	.08†
Primary obstetric care provider			.33†
General faculty obstetrician	95 (37.1)	79 (30.9)	
Maternal-fetal medicine physician	68 (26.6)	74 (28.9)	
Resident physician	93 (36.3)	103 (40.2)	
Index pregnancy considered high risk	106 (41.4)	112 (43.8)	.66†
Index delivery preterm	23 (9.0)	17 (6.6)	.41†
Index delivery vaginal	183 (71.5)	177 (69.1)	.63†

LARC, long-acting reversible contraception.
Data are n (%) or mean±SD unless otherwise specified.
* Independent-samples *t* test used for this comparison.
† Fisher exact test used for these comparisons.
‡ Chi-squared test used for these comparisons.
§ Other includes participants who identified with more than one race.
‖ Fisher exact test used for this comparison, *P*>.05.

Table 2. Long-Acting Reversible Contraception Use Intentions and Outcomes by 8 Weeks Postpartum for Women Scheduled for and Attended a 6-Week or 2- to 3-Week Postpartum Visit

Characteristic	6 Wk Visit (n=209)	2–3 Wk Visit (n=231)	P*
Planned LARC method for postpartum contraception before delivery	45 (21.5, 16.5–27.6)	39 (16.9, 12.6–22.2)	.23
Desired LARC at postpartum visit	87 (41.6, 35.2–48.4)	86 (37.2, 31.3–43.6)	.38
IUD	65 (31.1, 25.2–37.7)	66 (28.6, 23.1–34.7)	
Implant	22 (10.5, 7.1–15.4)	20 (8.7, 5.7–13.0)	
Initiated LARC at postpartum visit	65 (31.1, 25.2–37.7)	38 (16.5, 12.2–21.8)	<.01
IUD	47 (22.5, 17.4–28.6)	27 (11.7, 8.2–16.5)	
Levonorgestrel IUD	39 (83.0, 69.9–91.1)	20 (74.1, 55.3–86.8)	
Copper IUD	8 (17.0, 8.9–30.1)	7 (25.9, 13.2–44.7)	
Implant	18 (8.6, 5.5–13.2)	11 (4.8, 2.7–8.3)	
Initiated LARC by 8 wk postpartum	65 (31.1, 25.2–37.7)	62 (26.8, 21.5–32.9)	.34
IUD	47 (22.5, 17.4–28.6)	47 (20.4, 15.7–26.0)	
Levonorgestrel IUD	39 (83.0, 69.9–91.1)	35 (74.5, 60.5–84.8)	
Copper IUD	8 (17.0, 8.9–30.1)	12 (25.5, 15.3–39.5)	
Implant	18 (8.6, 5.5–13.2)	15 (6.5, 4.0–10.4)	

LARC, long-acting reversible contraception; IUD, intrauterine device.
Data are n (%, 95% CI) unless otherwise specified.
* Fisher exact test used for the overall LARC comparisons.

copper IUD after 81 days for side effects. Of 21 women in the 2- to 3-week cohort who had an IUD inserted within 28 days after delivery with follow-up through 6 months postpartum, four participants requested IUD removal for side effects. Two levonorgestrel IUDs were removed after 7 and 84 days, and two copper IUDs were removed after 60 and 100 days. No expulsions occurred in these 59 women.

Five participants in each group became pregnant within 6 months after delivery. Among women in the 6-week group, three planned to continue their pregnancies, one received treatment for an ectopic pregnancy, and one underwent termination. In the 2- to 3-week group, three women planned to continue their pregnancies and two experienced early pregnancy loss. One woman became pregnant after her copper IUD was removed for heavy bleeding, one participant was using progestin-only pills, two women were using condoms, and the rest were not using contraception when they became pregnant.

DISCUSSION

We found that scheduling a 2- to 3-week visit after delivery was associated with lower LARC initiation rates at the initial postpartum visit. We had hypothesized that an earlier visit would be associated with higher postpartum visit attendance, increased opportunity for contraception counseling, and resultant increase in LARC initiation. Instead, LARC initiation rates were lower, primarily as a result of delays in levonorgestrel IUD insertion, despite higher postpartum visit completion in women scheduled for an

Table 3. Reasons for Delay in Long-Acting Reversible Contraception Insertion at the Initial 6-Week and 2- to 3-Week Postpartum Visits

	Timing of Scheduled Postpartum Visit	
Reason for Delay	6 Wk	2–3 Wk
IUD	n=18	n=39
Insurance authorization*	11 (61.1)	6 (15.4)
Patient preference	2 (11.1)	19 (48.7)
Health care provider preference	4 (22.2)	14 (35.9)
Concern for pregnancy	1 (5.6)	0
Implant	n=4	n=9
Insurance authorization*	2 (50.0)	4 (44.4)
Health care provider preference	2 (50.0)	2 (22.2)
Patient preference	0	3 (33.3)

IUD, intrauterine device.
Data are n (%).
* Insurance authorization refers to situations in which insurance coverage for LARC was not verified before the postpartum visit.

Table 4. Contraception Initiated at the 6-Week or 2- to 3-Week Postpartum Visit and Reported Contraception Use at 6 Months Postpartum

	Initiated at Postpartum Visit			Reported Use at 6 Mo Postpartum		
Contraceptive Method	6 Wk (n=209)	2–3 Wk (n=231)	P*	6 Wk† (n=182)	2–3 Wk‡ (n=195)	P*
Tier 1						
Levonorgestrel IUD	39 (18.7, 14.0–24.5)	20 (8.7, 5.7–13.0)	<.01	43 (23.6, 18.0–30.3)	37 (19.0, 14.1–25.1)	.31
Copper IUD	8 (3.8, 2.0–7.7)	7 (3.0, 1.5–6.1)	.79	8 (4.4, 2.3–8.4)	11 (5.6, 3.2–9.8)	.64
Implant	18 (8.6, 5.3–13.5)	11 (4.8, 2.7–8.3)	.12	13 (7.1, 4.2–11.8)	17 (8.7, 5.5–13.5)	.70
Sterilization	0	0	ND	3 (1.7, 0.1–4.7)§	3 (1.5, 0.1–4.4)‖	1.0
Tier 2						
DMPA	9 (4.3, 2.3–8.0)	8 (3.5, 1.8–6.7)	.81	8 (4.4, 2.3–8.4)	5 (2.6, 1.1–5.9)	.40
Pills, patch, ring	58 (27.8, 22.1–34.2)	53 (22.9, 18.0–28.8)	.27	33 (18.1, 13.2–24.4)	34 (17.4, 12.8–23.4)	.89
Tier 3						
Condoms	42 (20.1, 15.2–26.1)	65 (28.1, 22.7–34.3)	.06	38 (20.9, 15.6–27.4)	45 (23.1, 17.7–29.5)	.62
Fertility awareness	2 (1.0, 0.3–3.4)	4 (1.7, 0.7–4.4)	.69	3 (1.7, 0.1–4.7)	1 (0.5, 0.1–2.8)	.36
None	33 (15.8, 11.5–21.4)	63 (27.3, 21.9–33.4)	<.01	33 (18.1, 13.2–24.4)	42 (21.5, 16.4–27.8)	.44

IUD, intrauterine device; ND, not done; DMPA, depot medroxyprogesterone acetate.
Data are presented as n (%, 95% CI). Tier levels are adapted from World Health Organization rating of contraceptive efficacy.[13]
* Fisher exact test used for comparisons.
† Seven participants not included in the table: one who underwent a hysterectomy for leiomyomas after the postpartum visit, one who reported using spermicide, and five who became pregnant by 6 months postpartum.
‡ Six participants not included in the table: one who reported using the lactational amenorrhea method and five who became pregnant by 6 months postpartum.
§ Two participants using vasectomy and one participant who underwent a female sterilization procedure.
‖ One participant using vasectomy and two participants who underwent female sterilization procedures.

earlier visit. Overall contraceptive initiation at the 2- to 3-week postpartum visit was also lower with more women choosing not to initiate a method. Contraceptive use patterns were similar in both groups by 6 months postpartum, indicating that women who initially deferred IUD insertion at 2–3 weeks after delivery did return for IUD initiation at a later visit.

In contrast to prior studies, we uncovered patient and health care provider barriers to IUD insertion with implementation of an earlier postpartum visit in clinical practice. Although IUD insertion at 2[8] and 3 weeks[9] was acceptable to clinical trial participants, patient preferences accounted for almost half of the delays in IUD insertion among women scheduled for a 2- to 3-week postpartum visit. Health care provider barriers were the second most common reason for delay. Before policy implementation, department physicians agreed to offer LARC insertion at 2–3 weeks postpartum, including IUDs; still, many physicians recommended deferring IUD initiation. The exact reasons for health care provider deferral of IUD initiation are unknown, which is a limitation of this study, but possible factors could include appointment time limitations. Previous studies have also demonstrated health care provider attitudes regarding safety as a limitation to both interval and immediate postpartum IUD initiation.[14,15]

A limitation of this study is the potential for baseline differences between the two groups to influence outcomes that would have been avoided in a randomized trial. Although not statistically significant, fewer women in the 2- to 3-week cohort planned for postpartum LARC at enrollment compared with women in the 6-week group. Furthermore, this study design introduces the possibility that external factors, other than the policy change itself, influenced the primary outcome of LARC initiation. The policy changed in June 2015, and the combination of new resident trainees and introduction of a new levonorgestrel IUD inserter device into the clinics could have contributed to the decrease in IUD insertion post-policy implementation.

Despite these limitations, our study highlights the advantages of scheduling an earlier postpartum visit. Postpartum visit attendance rates were higher at 2–3 weeks after delivery, which presents more opportunities for clinicians to address postpartum concerns. Most couples had not resumed intercourse before the 2- to 3-week visit, allowing women to initiate effective contraception initiation before they are at risk of pregnancy.[16] Our experience, albeit limited, also supports the present data on the safety of IUD insertion at 2–3 weeks postpartum.[8,9]

The higher postpartum visit attendance with implementation of an earlier visit was not enough to increase LARC or overall contraception initiation; rather, more clinician training and anticipatory guidance during the antenatal period are needed to maximize the visit.[11] The optimal timing for LARC

initiation differs based on several factors, including a woman's insurance coverage, ability to attend follow-up visits, and contraceptive preferences. With these considerations in mind, obstetric care providers should also present the option of LARC initiation at 2–3 weeks after delivery in addition to discussing immediate postpartum and interval insertion.

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