

2015

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Robbins, Cheryl L.; Farr, Sherry L.; Zapata, Lauren B.; D'Angelo, Denise V.; and Callaghan, William M., "Postpartum contraceptive use among women with a recent preterm birth" (2015). *Public Health Resources*. 451.

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GYNECOLOGY

Postpartum contraceptive use among women with a recent preterm birth

Cheryl L. Robbins, PhD; Sherry L. Farr, PhD; Lauren B. Zapata, PhD; Denise V. D'Angelo, MPH; William M. Callaghan, MD, MPH

OBJECTIVE: The objective of the study was to evaluate the associations between postpartum contraception and having a recent preterm birth.

STUDY DESIGN: Population-based data from the Pregnancy Risk Assessment Monitoring System in 9 states were used to estimate the postpartum use of highly or moderately effective contraception (sterilization, intrauterine device, implants, shots, pills, patch, and ring) and user-independent contraception (sterilization, implants, and intrauterine device) among women with recent live births (2009–2011). We assessed the differences in contraception by gestational age (≤ 27 , 28–33, or 34–36 weeks vs term ≥ 37 weeks) and modeled the associations using multivariable logistic regression with weighted data.

RESULTS: A higher percentage of women with recent extreme preterm birth (≤ 27 weeks) reported using no postpartum method (31%) compared with all other women (15–16%). Women delivering extreme preterm infants had a decreased odds of using highly or

moderately effective methods (adjusted odds ratio, 0.5; 95% confidence interval, 0.4–0.6) and user-independent methods (adjusted odds ratio, 0.5; 95% confidence interval, 0.4–0.7) compared with women having term births. Wanting to get pregnant was more frequently reported as a reason for contraceptive nonuse by women with an extreme preterm birth overall (45%) compared with all other women (15–18%, $P < .0001$). Infant death occurred in 41% of extreme preterm births and more than half of these mothers (54%) reported wanting to become pregnant as the reason for contraceptive nonuse.

CONCLUSION: During contraceptive counseling with women who had recent preterm births, providers should address an optimal pregnancy interval and consider that women with recent extreme preterm birth, particularly those whose infants died, may not use contraception because they want to get pregnant.

Key words: contraception effectiveness, insurance, Medicaid, postpartum, preterm birth

Cite this article as: Robbins CL, Farr SL, Zapata LB, et al. Postpartum contraceptive use among women with a recent preterm birth. *Am J Obstet Gynecol* 2015;213:508.e1-9.

In 2012, 12% of all US births were preterm (PTB; < 37 weeks' gestation),¹ and preterm-related deaths are the leading cause of infant mortality.^{2,3} Short interpregnancy intervals (IPI) (ie, conception within 18 months of a previous birth) are associated with approximately 40% increased risk of PTB (< 37 weeks' gestation), low birthweight, and small for gestational age⁴ and an increased risk of recurrent PTB.⁵

Short IPI has also been linked to severe maternal complications such as premature membrane rupture, abruption placentae, and placenta previa.⁶ Consequently, a Healthy People objective aims to reduce the proportion of pregnancies with short IPI by 10% by 2020 (baseline, 33.1%, 2006–2010).⁷

Use of highly effective contraception postpartum, particularly user-independent methods, is an important

strategy for reducing PTB, short IPI, and recurrent PTB. User-independent methods include male and female sterilization for those not desiring another pregnancy and long-acting reversible contraceptives (LARCs) for women who are not ready for child-bearing but want to preserve their fertility.^{8,9}

The American College of Obstetricians and Gynecologists encourages clinicians to offer LARCs as first-line contraception because they are reversible, have very high effectiveness and continuation rates ($> 99\%$ of women avoid an unintended pregnancy within the first year of use), and are cost effective, even when used short term (12–24 months).^{8,10,11} Permanent contraceptive methods (sterilization) are also highly effective ($> 99\%$), whereas effectiveness rates of other moderately effective, user-dependent methods (ie, pills, patch, ring, and shots) range from 91% to 94% with typical use.¹⁰

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Received March 10, 2015; revised April 20, 2015; accepted May 17, 2015.

The views expressed herein are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

The authors report no conflict of interest.

Presented as a poster at the annual meeting of the Society for Pediatric and Perinatal Epidemiologic Research, Denver, CO, June 15–16, 2015.

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0002-9378/\$36.00 • Published by Elsevier Inc. • <http://dx.doi.org/10.1016/j.ajog.2015.05.033>

TABLE 1

Maternal characteristics among sample of postpartum (2–9 mo), nonpregnant, women by history of recent preterm birth^a

Maternal characteristics	Recent term birth		Recent preterm birth				P value (χ^2)		
	≥ 37 wks (n = 25,946)		34–36 wks (n = 3987)		28–33 wks (n = 1872)	≤ 27 wks (n = 606)			
	Weighted, %	95% CI	Weighted, %	95% CI	Weighted, %	95% CI			
	91.3	90.9–91.6	6.46	6.1–6.8	1.72	1.6–1.8	0.56	0.5–0.6	
Age, y									.0330
<19	8.4	7.9–8.9	8.3	6.8–10.1	10.1	8.3–12.4	7.9	5.5–11.2	
20–24	23.5	22.8–24.3	23.0	20.7–25.5	23.6	20.8–26.7	30.4	24.9–36.6	
25–29	31.5	30.6–32.3	29.8	27.2–32.6	26.5	23.5–29.7	24.9	20.5–29.9	
30–34	24.3	23.5–25.1	24.5	22.1–27.1	23.9	20.8–27.4	26.1	21.1–31.8	
≥ 35	12.3	11.8–12.9	14.3	12.4–16.3	15.8	13.7–18.3	10.8	8.1–14.2	
Race/ethnicity									< .0001
White, non-Hispanic	72.6	72.0–73.3	71.5	69.1–73.7	63.8	60.3–67.2	57.4	51.5–63.1	
Black, non-Hispanic	9.8	9.5–10.2	14.1	12.5–15.9	19.6	17.1–22.4	27.6	22.3–33.5	
Other, non-Hispanic	5.6	5.2–6.0	5.0	4.0–6.2	6.9	4.5–10.3	4.9	3.4–7.1	
Hispanic	12.0	11.5–12.5	9.5	8.2–10.9	9.7	8.3–11.4	10.1	7.7–13.2	
Education, highest level									.0001
Less than 12th grade	14.4	13.8–15.1	16.3	14.2–18.7	16.7	14.4–19.4	16.4	11.7–22.4	
12th grade, GED, or high school graduate	24.6	23.8–25.4	27.2	24.6–29.9	29.3	26.3–32.5	35.7	30.1–41.7	
Some college or more	61.0	60.1–61.9	56.5	53.6–59.3	54.0	50.5–57.5	48.0	42.2–53.8	
Household income, dollars									< .0001
<10,000	20.3	19.6–21.1	24.8	22.3–27.4	29.3	26.2–32.6	29.9	24.3–36.1	
10,000–19,999	15.8	15.1–16.5	16.0	13.9–18.3	16.2	13.3–19.7	20.6	16.4–25.6	
20,000–34,999	17.3	16.7–18.1	15.3	13.4–17.4	16.8	14.6–19.4	18.9	14.7–23.9	
35,000–49,999	11.5	10.9–12.1	10.0	8.6–11.7	9.3	7.7–11.2	8.1	5.8–11.0	
$\geq 50,000$	35.1	34.3–36.0	34.0	31.3–36.7	28.4	25.4–31.5	22.6	18.4–27.5	
Marital status									< .0001
Not married	34.1	33.3–35.0	38.7	35.9–41.6	43.6	40.1–47.3	53.6	47.8–59.3	
Married	65.9	65.0–66.7	61.3	58.4–64.1	56.4	52.8–59.9	46.4	40.7–52.2	

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(continued)

TABLE 1

Maternal characteristics among sample of postpartum (2–9 mo), nonpregnant, women by history of recent preterm birth^a (continued)

Maternal characteristics	Recent term birth		Recent preterm birth				P value (χ^2)		
	≥ 37 wks (n = 25,946)		34–36 wks (n = 3987)	28–33 wks (n = 1872)	≤ 27 wks (n = 606)				
	Weighted, %	95% CI	Weighted, %	95% CI	Weighted, %	95% CI	Weighted, %	95% CI	
Health insurance at delivery									.0001
Uninsured	1.8	1.5–2.1	2.0	1.4–2.9	2.0	1.2–3.3	3.2	1.8–5.8	
Medicaid	42.8	41.9–43.7	43.5	40.6–46.3	49.8	46.3–53.3	53.1	47.2–53.8	
Other ^b	8.2	7.7–8.7	10.3	8.5–12.4	9.0	7.3–10.9	9.5	7.1–12.8	
Private	47.3	46.4–48.2	44.3	41.4–47.1	39.3	36.0–42.7	34.2	29.1–39.7	
Prenatal care									< .0001
None	0.4	0.3–0.5	1.6	1.0–2.5	2.8	1.9–4.2	3.9	1.9–7.9	
Late	17.1	16.5–17.9	13.4	11.8–15.2	17.5	15.0–20.4	17.8	13.5–23.1	
Early	82.4	81.7–83.1	85.0	83.1–86.7	79.7	76.7–82.4	78.3	72.7–83.1	
Current smoker									< .0001
Yes	18.9	18.1–19.6	24.7	22.1–27.5	23.0	20.2–26.1	23.6	18.9–29.1	
No	81.2	80.4–81.9	75.3	72.5–77.9	77.0	73.9–79.8	76.4	70.9–81.2	
Previous live births, n									.0001
0	39.4	38.5–40.3	38.3	35.5–41.1	43.4	40.0–46.9	41.2	35.7–46.9	
1–2	49.7	48.8–50.6	47.4	44.5–50.3	41.8	38.3–45.4	43.3	37.7–49.2	
≥ 3	10.9	10.3–11.5	14.3	12.4–16.5	14.8	12.6–17.3	15.5	10.8–21.8	
Previous preterm birth ^c									< .0001
Yes	4.0	3.5–4.6	14.2	11.0–18.1	17.8	12.5–24.8	13.6	9.4–19.3	
No	96.0	95.4–96.5	85.8	81.9–89.0	82.2	75.2–87.5	86.4	80.8–90.6	
Recent live-born baby died									< .0001
Yes	0.1	0.1–0.2	0.3	0.1–0.5	2.0	1.3–4.6	40.7	34.7–47.1	
No	99.9	99.8–99.9	99.7	99.5–99.9	98.0	95.4–98.7	59.3	52.9–63.4	

CI, confidence interval; GED, general education degree.

^a Based on Pregnancy Risk Assessment Monitoring System, 9 US states, 2009–2011 (n = 32,411); ^b Includes Tri-Care, other military, Indian Health Services, state-specific Children's Health Insurance Plan, Children's Health Insurance Plan; ^c Among multiparous women only (n = 14,068).

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Although several studies have examined contraceptive methods used postpartum,¹²⁻¹⁵ none have focused on women with a recent PTB, a group that is at risk of future PTB and in need of highly effective contraception to prevent short IPI and reduce recurrent PTB. We examined the prevalence of postpartum contraceptive use among women with recent live births and explored the associations between recent PTB and the consequent use of highly and moderately effective methods. We also investigated whether associations vary by insurance type and examined the reasons for contraceptive nonuse.

MATERIALS AND METHODS

This analysis is based on data from the Pregnancy Risk Assessment Monitoring System (PRAMS), an ongoing population-based survey of women with live births in the past 2–9 months. The PRAMS research design and survey methods have been described elsewhere,¹⁶ and additional details are available from the PRAMS web site (<http://www.cdc.gov/prams>).

Briefly, each participating state draws a stratified random sample from birth certificates and mails up to 3 surveys to each selected participant. Women who do not respond to the mailings are followed up by telephone. The data are weighted to account for sampling frame, noncoverage, and participant nonresponse, thus allowing for population-based inferences. The PRAMS protocol was approved by the Centers for Disease Control and Prevention's Institutional Review Board, and participating states approved the study analysis plan.

Data

PRAMS surveys comprise core questions that are asked by all participating sites and standard optional questions that sites may choose to add. For this analysis, we analyzed 2009–2011 data from 9 states (Arkansas, Colorado, Michigan, Nebraska, Ohio, Oregon, Rhode Island, Tennessee, and Utah) that asked the optional question about specific contraceptive methods used postpartum and achieved an overall weighted response rate of 65% or greater.

Measures

We estimated gestational age using the clinical estimate reported on the birth certificate and categorized gestational age as term births (≥ 37 weeks) and PTB (34–36 weeks, 28–33 weeks, and ≤ 27 weeks [extreme PTB]). The gestational age categories were selected a priori.

To describe postpartum contraceptive use, we examined responses to the following questions: “Are you or your husband or partner doing anything now to keep from getting pregnant?” and “What kind of birth control are you or your husband or partner using now to keep from getting pregnant?” Because respondents could report multiple methods, the most effective method of all responses was selected.¹⁰

Contraceptive use was categorized according to effectiveness.¹⁰

- Highly and moderately effective methods were those with which fewer than 10% of women have an unintended pregnancy within the first year of use: permanent methods (tubal ligation or vasectomy) and LARCs (intrauterine device or contraceptive implant) and moderately effective user-dependent methods (shots, pill, patch, and ring).
- Less effective methods were those with which 10% or more of women have an unintended pregnancy within the first year of use: male and female condoms, diaphragm, cervical cap, sponge, emergency contraception, rhythm, withdrawal, and other.
- No contraceptive method (nonuse) was coded when women answered no to current contraceptive use or reported that their only method was abstinence.

All nonusers were asked about reasons for not using contraceptives, specifically, “What are your reasons or your husband's or partner's reasons for not doing anything to keep from getting pregnant now?” Multiple close-ended responses were allowed and included the following responses: “I am not having sex,” “I want to get pregnant,” “I don't want to use contraception,” “My husband or partner doesn't want to use anything,” “I don't

think I can get pregnant,” “I can't pay for birth control,” and “other reason.” Respondents also had the option to write in a response.

Analysis

Of 37,089 respondents, 4678 (12.6%) were excluded because of a current pregnancy or hysterectomy (0.6%) or missing information on postpartum contraceptive method (2.8%) or covariates (9.2%). Women who reported abstinence were included in our analysis as nonusers because 90% of postpartum women resume sexual activity by 4 months postpartum¹⁷ and hence are at risk for pregnancy.

Our final analytical sample included 32,411 nonpregnant women with recent live births and data on all covariates. We estimated the prevalence of maternal characteristics and postpartum contraceptive use (highly or moderately effective methods, less effective methods, and no method) stratified by PTB group and used χ^2 tests to assess the statistical differences ($P < .05$).

Using a multivariable logistic regression to control for potential confounders, we evaluated the associations between recent PTB and 2 measures of postpartum contraceptive use: (1) any highly or moderately effective contraceptive method (vs less effective methods and no method) and (2) highly effective user-independent methods (vs moderately effective methods, less effective methods, and no method). Potential confounders identified from the literature were age, race/ethnicity, education, income, health insurance, marital status, prenatal care, parity, and smoking.

We conducted sensitivity analyses of the multivariable models among subgroups of women who expressed no concerns about potential infertility ($n = 32,309$) and multiparous women, additionally controlling for pregnancy intention and previous PTB ($n = 14,068$). We also examined associations between infant death and contraceptive use among women who had extreme PTB ($n = 517$).

We assessed effect modification by insurance type at delivery (private, Medicaid, other, none) for the full

sample by examining statistical significance of interaction terms between PTB and insurance type for both outcomes ($P < .05$). All analyses were conducted using weighted data and STATA 13 (2013; StataCorp LP, College Station, TX) to adjust for the complex survey design, thus allowing for population inferences.

RESULTS

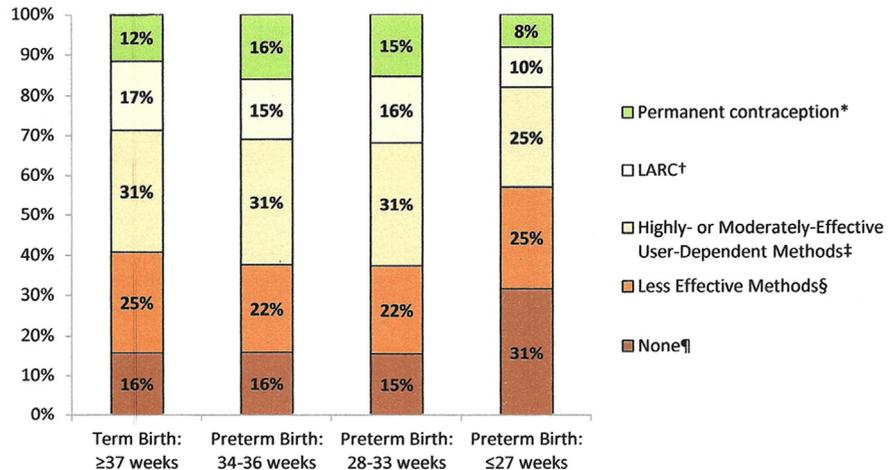
A larger percentage of excluded women had recent PTB (10.4%) compared with the analytical sample (8.7%; $P = .005$) and reported no postpartum contraceptive method (24.4% vs 8.7%; $P < .0001$). Of excluded women, recent PTB was even higher among the subset of excluded pregnant women (14.1%). Excluded women were also more likely to be young, minority race/ethnicity, low income, and unmarried and reported late entry into prenatal care and less likely to be college educated or privately insured.

Prevalence of having a recent PTB was 8.7%, of which extreme PTB accounted for less than 1% (Table 1). Compared with women who had recent term births, a higher percentage of women with recent PTBs were non-Hispanic black, low income, unmarried, and current cigarette smokers. Additionally, a higher percentage of women with recent PTBs reported having had 3 or more previous live births, previous PTB, no prenatal care for the most recent live birth, and death of the most recent live-born infant. A smaller percentage of women with recent PTB were college educated or had private insurance (compared with women with recent term births). Infant death varied by gestational age of the recent birth: 41% at 27 weeks or less, 2% at 28–33 weeks, and less than 1% for 34 weeks or longer.

Postpartum contraceptive use varied by gestational age of the most recent birth (Figure, $P < .0001$). Nearly half of all women with a recent PTB (39%) reported using a less effective method or no method at all. Except for those with a recent extreme preterm birth, most women reported using moderately effective user-dependent methods. Women with extreme PTB most frequently reported no method (31%),

FIGURE

Percentage of postpartum contraceptive method type



$p < .0001$

Pregnancy Risk Assessment Monitoring System, 9 U.S. states and New York City, 2009–2011.

* Includes tubal ligation and vasectomy.

† Includes intrauterine devices, and implants.

‡ Includes shots, pill, patch, and ring.

§ Includes male and female condoms, diaphragm, cervical cap, sponge, emergency contraception, rhythm, withdrawal, and other.

¶ Includes abstinence.

This figure depicts the prevalence of postpartum contraception use (permanent, LARCs, highly and moderately effective user-dependent methods, less effective methods, none) stratified by the most recent birth outcome (term or preterm: 34–36 weeks, 28–33 weeks, ≤ 27 weeks).

LARC, long-acting reversible contraceptive.

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at approximately twice the prevalence that was reported by all other groups of women (15–16%).

Women with extreme PTB also had the lowest prevalence of using moderately effective user-dependent methods (25%), LARCs (10%), and permanent contraception (8%), compared with all other groups of women. In subgroup analyses among women with an extreme PTB, a higher percentage of women whose infants died used no method (42%) compared with their counterparts whose infants survived (19%, $P = .0003$; not shown).

After adjusting for confounders, women with extreme PTB had half the odds (adjusted odds ratio, 0.5) of using any highly or moderately effective method or user-independent methods, compared with women who had recent term births (Table 2). However, point estimates for other women with PTB

(28–33 and 34–36 weeks) did not statistically differ from those with term births. The point estimates for using any highly or moderately effective method, or user-independent methods among women with extreme PTB were unchanged in sensitivity analyses for the subsample of women who expressed no concerns about potential infertility or after controlling for previous PTB and pregnancy intention for the subsample of multiparous women (not shown). We found no evidence of effect modification by insurance type.

Among women with extreme PTB, the most frequently reported reason for contraceptive nonuse was the desire to get pregnant (45%), and this reason was more prevalent when limited to those with an extreme PTB who lost their infants (54%, data not shown). Among women who were not using any contraception, lower percentages of women

TABLE 2
aORs and 95% CIs modeling associations between postpartum contraceptive methods and history of recent preterm birth^a

Most recent live birth, wks of gestation	Postpartum use of contraception			
	Highly or moderately effective contraceptive methods ^b		Highly effective user-independent contraceptive methods ^c	
	aOR ^d	95% CI	aOR	95% CI
≥37	Reference		Reference	
34–36	1.1	1.0–1.3	1.1	0.9–1.2
28–33	1.1	1.0–1.3	1.2	1.0–1.4
≤27	0.5	0.4–0.6	0.5	0.4–0.7

aOR, adjusted odds ratio; CI, confidence interval.

^a Based on Pregnancy Risk Assessment Monitoring System, 9 US states, 2009–2011 (n = 32,411); ^b Includes tubal ligation, vasectomy, intrauterine devices, implants, shots, pill, patch, and ring (vs male and female condoms, diaphragm, cervical cap, sponge, emergency contraception, rhythm, withdrawal, other, and no method); ^c Includes tubal ligation, vasectomy, intrauterine devices, or implants (vs shots, pill, patch, and ring, male and female condoms, diaphragm, cervical cap, sponge, emergency contraception, rhythm, withdrawal, other, and no method); ^d Adjusted for age, race/ethnicity, education, income, insurance, marital status, prenatal care entry, parity, and smoking.

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with recent PTB at 28–33 weeks and 27 weeks or less reported not wanting to use contraception (21% and 17%, respectively) than women who had term births (35%, Table 3).

Many women with a recent term birth (29%) or PTB (17–28%) alike reported reasons for contraception nonuse other than those in the explicit response options. Believing that one could not get pregnant, current breast-feeding, and pregnancy ambivalence or desire were the most frequent reasons noted among women who reported other response. Financial barriers to obtaining birth control were infrequently reported as a reason by all groups (6–11%).

COMMENT

Overall, nearly half of all women with recent PTB reported using less effective contraceptive methods or no method. Women with a recent extreme PTB had a reduced odds of using any highly or moderately effective method or user-independent methods, compared with women with recent term births. We also found that a higher percentage of women with extreme PTB whose infants died used no method (42%) compared with their counterparts whose infants survived (19%). This finding suggests that the observed associations between

extreme PTB and contraceptive effectiveness are mediated by infant death.

The associations between the gestational age of the recent birth and the use of any highly or moderately effective method did not differ according to insurance status. Reasons for not using contraception differed by a recent history of PTB. Of women whose recent extreme PTB resulted in infant death, more than half reported not using contraception because they wanted to become pregnant. Wanting to get pregnant was more frequently reported among women with a recent extreme PTB than among women who had term births. Financial barriers were infrequently reported for contraceptive nonuse among all women.

PTB is a strong predictor of recurrent PTB,¹⁸ and our finding that approximately half of women with recent PTB were using less effective methods or no contraception should serve as a call to action. Many women with a recent PTB, particularly those whose babies died, want to get pregnant and therefore do not use contraception postpartum. Providers need to consider this possibility during contraceptive counseling.

Contraceptive counseling on the negative consequences of short IPI and early postpartum access to highly

effective contraception, such as LARCs or sterilization, if appropriate and desired by the woman, is a critical strategy for reducing short IPI and PTB.^{19,20} Providers can also use the contraceptive counseling moment as an opportunity to correct misperceptions about impaired postpartum fertility. This is important because postpartum women may underestimate their fertility after birth.²¹

The earliest and possibly best opportunity for initiating highly effective contraception postpartum is before hospital discharge after delivery. There are a couple of reasons for this. First, sexual activity frequently occurs before the postpartum visit.²² Second, the postpartum period can be a chaotic time, and new mothers can be narrowly focused on their newborns during that time. This may be particularly true for women with critically ill infants undergoing intensive care. As a result of this intense focus on newborns, women may neglect their own needs during the postpartum period. For example, a large study of Medicaid claims in California found less than half of postpartum women (41%) received contraceptive services within the first 3 months of giving birth.²³ Although it is ideal to provide immediate access to highly

TABLE 3
Reasons for not using contraception by gestational age of recent birth^a

Reason given	Recent term birth		Recent preterm birth				P value (χ^2)
	≥ 37 wks		34–36 wks		≤ 27 wks		
	Weighted, %	95% CI	Weighted, %	95% CI	Weighted, %	95% CI	
I am not having sex	28.0	25.8–30.4	27.5	21.2–34.9	33.5	26.2–41.6	13.7–34.3 .5716
I want to get pregnant	17.7	15.8–19.8	17.6	12.6–23.9	15.3	10.9–21.0	32.4–58.6 .0001
I do not want to use contraception	35.4	32.9–38.0	28.1	21.2–36.3	20.5	14.1–28.8	17.0 10.3–26.8 .0022
My husband or partner does not want to use anything	13.6	11.9–15.6	11.6	8.2–16.2	10.1	5.4–18.2	7.3 2.8–17.7 .3544
I do not think I can get pregnant (sterile)	5.2	4.1–6.5	8.5	5.6–12.6	14.8	10.0–21.3	4.6 1.6–12.9 .0003
I cannot pay for birth control	6.3	5.1–7.7	6.8	4.4–10.4	10.5	6.0–17.7	8.4 3.8–17.8 .4079
Other reason	28.5	26.1–31.0	27.8	20.7–36.3	21.0	15.1–28.5	17.1 10.3–27.0 .2286

CI, confidence interval.

^a Based on Pregnancy Risk Assessment Monitoring System, 9 US states, 2009–2011 (among 4280 postpartum women who reported no current contraceptive use).

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effective contraception after delivery, unfortunately, the global fee for delivery-related care typically does not include reimbursement for contraception.²⁴

The postpartum visit provides another important opportunity for contraceptive counseling and contraception initiation. Zutshi et al²⁵ recently investigated risk factors for short IPI among women who attended an obstetrics-gynecology residence clinic in a large community hospital and found women who received postpartum visits had lower rates of pregnancy within 18 months of delivery.

Highly effective contraception can be initiated at the postpartum visit without waiting for menses to resume if the clinician is reasonably certain the woman is not pregnant. This strategy, known as Quick Start, is recommended by the Centers for Disease Control and Prevention^{26,27} and has been shown to be safe and effective.^{28,29} Unfortunately, nearly one fourth of women who deliver do not return for postpartum visits.³⁰ For these women, Quick Start of contraception could be offered at other medical visits for the mother or her infant during the postpartum period.

The findings from our study are subject to the following limitations. First, PRAMS data were not available for all states; the 9 states in our analysis represent approximately 14% of US births; white women are overrepresented and non-Hispanic black and Hispanic women are underrepresented compared with the US population.³¹ Second, PRAMS surveys only women who delivered live infants; we cannot comment on women who had stillbirths or miscarriages. Third, misclassification is possible because some women use contraceptive methods other than those specified by the survey options. For example, PRAMS does not assess breastfeeding exclusivity. Therefore, women relying on lactation amenorrhea may be misclassified as nonusers. Fourth, selection bias is possible because nearly 13% women were excluded, and larger percentages of excluded women had recent PTB compared with the analytic sample. Fifth, we did not exclude women who reported that they were not currently

sexually active because we assumed that sexual activity would most likely resume, putting them at risk of short IPI. If anything, this would lead to underestimates of contraceptive method types compared with those reported by other studies that excluded abstinent women. However, our estimates generally aligned with ranges reported by other studies.

Despite these limitations, the study results suggest that women with a recent PTB may benefit from contraceptive counseling on the negative consequences of short IPI. Additionally, contraceptive providers should consider that women whose infants died may want to become pregnant again relatively soon and address optimal pregnancy intervals with sensitivity.

Contraceptive counseling that encourages the use of highly effective contraceptive methods and dispels myths about impaired fertility during the postpartum period is important for all postpartum women, especially those with a recent history of PTB. Patient and institutional barriers to using highly effective contraception postpartum need to be addressed, and research should explore whether women with recent PTB encounter additional barriers. Use of highly effective postpartum contraception may be improved with additional education about fertility during the postpartum period and with increased opportunities to receive contraceptive counseling at all medical visits for mothers and their infants during the postpartum period. ■

ACKNOWLEDGMENTS

We thank Jamie Schenk for her help in analyzing write-in survey responses. The PRAMS Working Group included the following: Alabama, Izza Afgan, MPH; Alaska, Kathy Perham-Hester, MS, MPH; Arkansas, Mary McGehee, PhD; Colorado, Alyson Shupe, PhD; Connecticut, Jennifer Morin, MPH; Delaware, George Yocher, MS; Florida, Avalon Adams-Thames, MPH, CHES; Georgia, Chinelo Ogbuanu, MD, MPH, PhD; Hawaii, Emily Roberson, MPH; Illinois, Theresa Sandidge, MA; Iowa, Sarah Mauch, MPH; Louisiana, Amy Zapata, MPH; Maine, Tom Pate-naude, MPH; Maryland, Diana Cheng, MD; Massachusetts, Emily Lu, MPH; Michigan, Cristin Larder, MS; Minnesota, Judy Punyko, PhD, MPH; Mississippi, Brenda Hughes, MPPA;

Missouri, Venkata Garikapaty, MSc, MS, PhD, MPH; Montana, JoAnn Dotson; Nebraska, Brenda Coufal; New Hampshire, David J. Laflamme, PhD, MPH; New Jersey, Lakota Kruse, MD; New Mexico, Eirian Coronado, MPH; New York State, Anne Radigan-Garcia; New York City, Candace Mulready-Ward, MPH; North Carolina, Kathleen Jones-Vessey, MS; North Dakota, Sandra Anseth; Ohio, Connie Geidenberger PhD; Oklahoma, Alicia Lincoln, MSW, MSPH; Oregon, Kenneth Rosenberg, MD, MPH; Pennsylvania, Tony Norwood; Rhode Island, Sam Viner-Brown, PhD; South Carolina, Mike Smith, MSPH; Texas, Rochelle Kingsley, MPH; Tennessee, David Law, PhD; Utah, Lynsey Gammon, MPH; Vermont, Peggy Brozicevic; Virginia, Marilyn Wenner; Washington, Linda Lohdefinck; West Virginia, Melissa Baker, MA; and Wisconsin, Katherine Kvale, PhD.

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