

GYNECOLOGY

Contraceptive counseling and postpartum contraceptive use

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OBJECTIVE: The objective of the study was to examine the associations between prenatal and postpartum contraceptive counseling and postpartum contraceptive use.

STUDY DESIGN: The Pregnancy Risk Assessment Monitoring System 2004–2008 data were analyzed from Missouri, New York state, and New York City ($n = 9536$). We used multivariable logistic regression to assess the associations between prenatal and postpartum contraceptive counseling and postpartum contraceptive use, defined as any method and more effective methods (sterilization, intrauterine device, or hormonal methods).

RESULTS: The majority of women received prenatal (78%) and postpartum (86%) contraceptive counseling; 72% received both. Compared with those who received no counseling, those counseled during 1 time period (adjusted odds ratio [AOR], 2.10; 95% confidence interval [CI], 1.65–2.67) and both time periods (AOR, 2.33; 95% CI, 1.87–2.89) had significantly increased odds of postpartum use of a more effective

contraceptive method (32% vs 49% and 56%, respectively; P for trend $< .0001$). Results for counseling during both time periods differed by type of health insurance before pregnancy, with greater odds of postpartum use of a more effective method observed for women with no insurance (AOR, 3.51; 95% CI, 2.18–5.66) and Medicaid insurance (AOR, 3.74; 95% CI, 1.98–7.06) than for those with private insurance (AOR, 1.87; 95% CI, 1.44–2.43) before pregnancy. Findings were similar for postpartum use of any contraceptive method, except that no differences by insurance status were detected.

CONCLUSION: The prevalence of postpartum contraceptive use, including the use of more effective methods, was highest when contraceptive counseling was provided during both prenatal and postpartum time periods. Women with Medicaid or no health insurance before pregnancy benefited the most.

Key words: contraception, contraceptive counseling, postpartum period, prenatal care

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Nearly half of US pregnancies are unintended (UIP),¹ and approximately one-third are conceived within 18 months of a previous live birth.²

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UIPs have been associated with maternal substance use during pregnancy, delayed prenatal care, low birthweight, and preterm delivery.³ Short interpregnancy intervals (IPIs) have been associated with small for gestational age, low birthweight, and preterm delivery.⁴

Postpartum contraceptive use is a primary strategy for reducing UIPs and optimizing birth spacing⁵ yet during 2004–2006, 12% of women with a recent live birth reported not using any method of contraception and only 62% reported using highly effective methods (ie, sterilization, intrauterine device, pills, patch, ring, or shots).⁶ Less than optimal postpartum contraceptive use highlights the need to understand associated factors, including the potential role of contraceptive counseling during the prenatal and postpartum periods.

The American College of Obstetricians and Gynecologists and the American Academy of Pediatrics recommend

that discussion of contraceptive options and prompt initiation of a method postpartum should be a primary focus of routine prenatal and postpartum care.⁷ Ideally, contraceptive counseling for pregnant women begins during the prenatal period because women in the immediate postpartum period are typically focused on childbirth recovery and newborn care. Contraceptive counseling during the prenatal and postpartum periods is also important because pregnancy and childbirth may change a woman's preference for contraception. In one study, 46% of postpartum women chose to use a different method postpartum than the one used before pregnancy, preferring a method that was easy to use, had long-term protection, and did not require a monthly pharmacy trip.⁸

Although studies have reported the effects of prenatal contraceptive counseling on postpartum contraceptive use among women^{9–11} and adolescents,¹²

the effects of postpartum contraceptive counseling, independently and in combination with prenatal contraceptive counseling, have not been explored. This analysis examines the associations between prenatal contraceptive counseling, postpartum contraceptive counseling, and both prenatal and postpartum contraceptive counseling with the use of any and more effective contraceptive methods.

MATERIALS AND METHODS

The Pregnancy Risk Assessment Monitoring System (PRAMS) is an ongoing, population-based surveillance system that gathers information on maternal behaviors and experiences before, during, and after pregnancy from selected states in the United States and New York City. Samples of women with recent live births are drawn from state birth certificates 2-6 months after delivery.

Data are collected by mailed questionnaires; nonrespondents are contacted by telephone. The PRAMS questionnaire in each reporting area includes core questions that appear on all PRAMS surveys and area-specific questions of interest. To produce data representative of the state birth population, data are weighted for sample design, nonresponse, and noncoverage. More detail on the PRAMS methodology has been published previously¹³ and is also available from the PRAMS web site (<http://www.cdc.gov/prams>).

We analyzed 2004-2008 data from 3 reporting areas (Missouri, New York state [excluding New York City], and New York City), the only PRAMS reporting areas that added questions on receipt of postpartum contraceptive counseling and specific contraceptive methods used postpartum to their core PRAMS surveys. Other PRAMS participating states did not collect this information.

To be included in the analyses, reporting areas must have achieved an overall weighted response rate of 65% or more for each year of data. Data were included for 2004-2008 for New York State, 2004-2007 for New York City, and 2007 for Missouri. The annual weighted response rates for these reporting areas

during 2004-2008 ranged from 65% to 73%. The PRAMS project was approved by the Institutional Review Board of the Centers for Disease Control and Prevention.

Prenatal contraceptive counseling was measured by asking, "During any of your prenatal care visits, did a doctor, nurse, or other health care worker talk with you about any of the things listed below? Please count only discussions, not reading materials or videos." One topic listed was birth control methods to use after my pregnancy.

Postpartum contraceptive counseling was measured by asking, "After your new baby was born, did a doctor, nurse, or other health care worker talk with you about using birth control?" To examine postpartum contraceptive use, women were asked, "Are you or your husband or partner doing anything now to keep you from getting pregnant?" and "What kind of birth control are you or your husband or partner using now to keep from getting pregnant?"

Respondents who answered no to the first question were classified as using no method and were not asked the second question, which included 13 response options for specific contraceptive methods and other. Respondents answering other were given the opportunity to write in a response; some responses were recoded into existing method options or new response options that were added (ie, implant, spermicide). PRAMS questions are cognitively and field tested prior to being included on the survey and evaluated every 3-4 years afterward.

More effective methods were defined as those with less than 10% of women experiencing an UIP within the first year of typical use based on published effectiveness rates¹⁴ and included tubal ligation, vasectomy, implant, intrauterine device, shot, pill, patch, or ring; this classification was chosen to be consistent with a prior report.⁶

Less effective methods were those with 10% or more of women experiencing an UIP within the first year of typical use and included diaphragm, condoms, cervical cap, sponge, withdrawal, spermicide, or rhythm method.

Women reporting the use of more than 1 method were classified as using the most effective of the multiple methods consistent with prior reports.^{6,10,12}

To focus on postpartum women at risk for UIP or short IPI, we excluded women who reported that they were currently pregnant ($n = 70$), were not sexually active at the time of the survey ($n = 675$), or had undergone a hysterectomy ($n = 7$). We also excluded respondents who answered yes to the postpartum contraceptive use core question and either did not respond to the question about the type of contraceptive method used ($n = 418$) or responded other to the question but the write-in response could not be recoded ($n = 24$).

We excluded women with missing data on the outcome or exposure variables of interest ($n = 431$) and women who did not receive prenatal care ($n = 108$) because these women did not have the opportunity to receive prenatal contraceptive counseling. Theoretically, all postpartum women had the opportunity to receive postpartum contraceptive counseling (eg, in the hospital prior to discharge), so we did not make exclusions based on the receipt of a postpartum care visit.

Separate multivariable logistic regression models were used to examine associations between prenatal, postpartum, and prenatal and postpartum contraceptive counseling and the use of any contraceptive method (yes vs no) and the use of a more effective contraceptive method (yes vs a less effective or no method). Based on a priori considerations, we adjusted for age group, race/ethnicity, marital status, education, type of insurance before pregnancy, pregnancy intention of the most recent live birth, number of previous live births, current breast-feeding, months since delivery, reporting area, and year.

To maximize the number of observations included in multivariable analyses, control variables with more than 2% missing data were recoded to include missing as a response category. We also adjusted for postpartum contraceptive counseling (when examining the effect of prenatal contraceptive counseling)

and prenatal contraceptive counseling (when examining the effect of postpartum contraceptive counseling).

We examined variance inflation factors to rule out potential multicollinearity between our covariates. Because we suspected that women who received postpartum sterilization may have reported not receiving postpartum contraceptive counseling (eg, they received all counseling during pregnancy), we conducted a sensitivity analysis excluding these women ($n = 863$). In this subanalysis, we also examined the association between contraceptive counseling and use of long-acting reversible contraceptives (LARCs) classified as a polytomous outcome (LARC use and shot, pill, patch, or ring vs a less effective or no method).

Among the entire sample, we also examined whether the associations between receiving prenatal and postpartum contraceptive counseling and each outcome were modified by pregnancy intention or type of health insurance before pregnancy by testing interaction terms added to full models. We examined effect modification by type of health insurance before rather than during pregnancy because it is a better measure of usual insurance status because most US women have access to insurance during pregnancy.¹⁵ Where significant ($P < .05$) effect modification was detected, stratum-specific estimates were calculated using contrast statements in a single model of the entire analytical sample. All analyses were performed on weighted data using SAS-callable SUDAAN (SAS Institute Inc., Cary, NC) to account for the complex design of the PRAMS.

RESULTS

Among 11,306 women with a recent live birth in the 3 reporting areas, 10,520 (93%) were considered at risk for UIP or short IPI. Among those, 9536 (91%) were eligible for the current analysis. The majority (>50%) were aged 25-34 years, non-Hispanic white, married, and high school graduates; had private health insurance before pregnancy and at least 1 previous live birth; reported their most recent pregnancy was intended; had a postpartum check-up; were not

TABLE 1

Sample characteristics, contraceptive counseling, and postpartum contraceptive use, PRAMS, 3 reporting areas, 2004–2008 ($n = 9536$)^a

Characteristic	Total sample	
	n ^b	% ^b
Age group, y		
≤24	2535	27.4
25-34	5111	54.1
≥35	1890	18.5
Race/ethnicity		
Non-Hispanic white	5333	58.1
Non-Hispanic black	1576	14.2
Hispanic	1924	20.9
Non-Hispanic other	697	7.0
Marital status		
Married	5988	62.7
Other	3547	37.3
Education, y		
<12	1483	17.4
12	2535	26.7
>12	5457	55.9
Type of insurance before pregnancy		
None	2233	23.5
Medicaid (no private)	1066	12.1
Private	6213	64.4
Previous live birth		
0	4218	42.5
1	2911	31.9
≥2	2340	25.5
Pregnancy intention		
Unintended	3271	35.1
Intended	6118	64.9
Postpartum check-up		
No	754	7.7
Yes	8766	92.3
Currently breast-feeding		
No	5627	56.8
Yes	3531	40.7
Missing information	378	2.5

Zapata. Counseling and postpartum contraception. Am J Obstet Gynecol 2015.

(continued)

TABLE 1
Sample characteristics, contraceptive counseling, and postpartum contraceptive use, PRAMS, 3 reporting areas, 2004–2008 (n = 9536)^a
 (continued)

Characteristic	Total sample	
	n ^b	% ^b
Time since delivery, mos		
1-3	1130	11.7
4	4423	45.9
5-6	2986	31.4
7-12	760	8.5
Missing information	237	2.4
Reporting area		
Missouri	1219	8.0
New York (excluding New York City)	4440	55.2
New York City	3877	36.7
Reporting year		
2004	1569	18.0
2005	1864	20.0
2006	1719	17.8
2007	3401	32.2
2008	983	12.1
Prenatal contraceptive counseling		
No	2262	21.8
Yes	7274	78.2
Postpartum contraceptive counseling		
No	1396	13.9
Yes	8140	86.1
Prenatal and postpartum counseling		
None	787	7.8
One (prenatal or postpartum only)	2084	20.2
Both (prenatal and postpartum)	6665	72.1
Postpartum contraceptive use		
No method	1476	15.4
More effective method	5028	52.6
Female sterilization	863	8.6
Male sterilization	207	2.2
Intrauterine device		6.3
Implant	15	0.2
Pills	2247	24.1
Patch	212	2.1
Ring	159	1.5
Shots	699	7.5

Zapata. Counseling and postpartum contraception. *Am J Obstet Gynecol* 2015.

(continued)

currently breast-feeding; and were 4–12 months' postpartum at the time of the survey (Table 1).

Related to contraceptive counseling, 78% received prenatal counseling, 86% received postpartum counseling, and 72% received both (Table 1). Most women (85%) reported using some method of contraception postpartum, with 53% using a more effective method (pills were most commonly reported) and 32% using a less effective method (condoms were most commonly reported).

Prenatal contraceptive counseling was significantly associated with using any vs no contraceptive method postpartum (87% vs 76% among those who did and did not receive prenatal counseling; adjusted odds ratio [AOR], 1.53; 95% confidence interval [CI], 1.29–1.82), and using a more vs less effective or no method postpartum (56% vs 39% among those who did and did not receive prenatal counseling; AOR, 1.51; 95% CI, 1.30–1.75) (Table 2).

Additionally, postpartum contraceptive counseling was significantly associated with using any vs no method postpartum (86% vs 75% among those who did or did not receive postpartum counseling; AOR, 1.64; 95% CI, 1.34–2.00) but was not associated with using a more vs less effective or no method postpartum (AOR, 1.19; 95% CI, 1.00–1.41). Compared with those who received no counseling, those who received counseling during one time period (either prenatal or postpartum), and those who received counseling during both time periods (prenatal and postpartum) had 2.01 (95% CI, 1.55–2.59) and 2.74 (95% CI, 2.18–3.45) increased odds, respectively, of using any method postpartum (69% vs 81% and 87%, respectively) and 2.10 (95% CI, 1.65–2.67) and 2.33 (95% CI, 1.87–2.89) increased odds, respectively, of using a more effective method postpartum (32% vs 49% and 56%, respectively).

Findings from the sensitivity analysis, which excluded women who reported sterilization postpartum, found similar results as the main analysis. In general, point estimates were similar, except for greater magnitude of association between postpartum contraceptive

TABLE 1
Sample characteristics, contraceptive counseling, and postpartum contraceptive use, PRAMS, 3 reporting areas, 2004–2008 (n = 9536)^a
 (continued)

Characteristic	Total sample	
	n ^b	% ^b
Less effective method	3032	32.0
Condoms	2269	23.5
Diaphragm/cervical cap/sponge	32	0.4
Withdrawal	434	4.8
Rhythm or natural family planning	273	3.0
Spermicides	24	0.3

PRAMS, pregnancy risk assessment monitoring system.

^a Missouri, New York City, and New York; ^b Unweighted n, weighted percentage.

Zapata. Counseling and postpartum contraception. *Am J Obstet Gynecol* 2015.

counseling and use of any method and use of a more effective method postpartum, the latter of which was also statistically significant (data not shown).

Additionally, a more pronounced incremental increase in odds of postpartum use of a more effective contraceptive method was observed comparing women who received no counseling (the referent), those who received counseling during 1 time period (AOR, 2.35; 95% CI, 1.78–3.10), and those who received counseling during both time periods (AOR, 3.26; 95% CI, 2.54–4.17). When the referent group was changed to those who received counseling during 1 time period, those who received counseling during both time periods continued to have significantly increased odds of postpartum use of a more effective contraceptive method (AOR, 1.39; 95% CI, 1.19–1.62).

When examining our polytomous outcome variable to assess the effect of counseling efforts on LARC uptake, women who received counseling during both time periods (vs no counseling) had significantly increased odds of LARC use vs a less effective or no method (AOR, 4.25; 95% CI, 2.32–7.77); these women also had significantly increased odds of using a non-LARC hormonal method (ie, shot, pill, patch, or ring) vs a less effective or no method (AOR, 3.13; 95% CI, 2.42–4.05). Women who received

counseling during 1 time period (vs no counseling) also had significantly increased odds of LARC use vs a less effective or no method (AOR, 2.52; 95% CI, 1.30–4.89) as well as significantly increased odds of using a non-LARC hormonal method vs a less effective or no method (AOR, 2.33; 95% CI, 1.75–3.10).

Among the entire sample, results for counseling during both time periods significantly differed by type of health insurance before pregnancy for use of a more effective contraceptive method postpartum; the interaction terms between counseling during both periods and pregnancy intention were not statistically significant for either outcome. Although contraceptive counseling during both time periods (vs no counseling) was significant for women in each category of prepregnancy insurance, greater odds of using a more effective method postpartum were observed for women with no insurance (AOR, 3.51; 95% CI, 2.18–5.66) and Medicaid insurance (AOR, 3.74; 95% CI, 1.98–7.06) than for those with private insurance (AOR, 1.87; 95% CI, 1.44–2.43) before pregnancy (Table 3). Similar findings were observed for contraceptive counseling during 1 time period (prenatal or postpartum only).

Among the 15% of women who reported using no method of contraception

postpartum to prevent pregnancy (n = 1476), 40% stated that they did not want to use birth control, 25% reported that they wanted to get pregnant, and 17% reported that their husband or partner did not want to use anything (data not shown).

COMMENT

Only half of the postpartum women at risk for UIP or short IPI reported using a highly effective contraceptive method, highlighting the potential role of contraceptive counseling to increase postpartum use and thereby help prevent adverse outcomes associated with UIPs and short IPIs. Our findings suggest that prenatal and postpartum contraceptive counseling, independently, were associated with postpartum contraceptive use, but the prevalence of postpartum contraceptive use, including the use of more effective methods, was highest when contraceptive counseling was provided during both prenatal and postpartum periods.

Discussing postpartum contraception prenatally lays the groundwork for decisions about postpartum contraception and enables the possibility of initiation in the immediate postpartum period, which may be particularly advantageous for women unlikely to return for a postpartum care visit. But counseling during the postpartum period is useful to encourage contraceptive use among those who have yet to initiate a method, discuss any concerns, and reiterate messages on the importance of correct and continued use.

The greatest benefit of receiving counseling during both time periods was observed for women with Medicaid or no insurance before pregnancy compared with those privately insured. This may be because underinsured individuals, in general, access health care services less frequently¹⁶ and thus may gain the most when receiving preventive health counseling. It may also be related to the limitations of pregnancy-related Medicaid coverage, which is lost 60 days after delivery unless states have Medicaid family-planning eligibility expansions extending coverage.¹⁷ Other studies have found that postpartum

TABLE 2

Associations between contraceptive counseling and postpartum contraceptive use, PRAMS, 3 reporting areas, 2004-2008 (n = 9536)^a

Contraceptive counseling	Postpartum contraceptive use			
	Use of any contraceptive method (vs no method)		Use of a more effective ^b contraceptive method (vs less effective ^c or no method)	
	n (%) ^d	AOR (95% CI) ^e	n (%) ^d	AOR (95% CI) ^e
Prenatal				
No	1740 (76.4)	1.00	918 (39.2)	1.00
Yes	6320 (86.9)	1.53 (1.29–1.82) ^f	4110 (56.4)	1.51 (1.30–1.75) ^f
Postpartum				
No	1057 (74.8)	1.00	643 (44.6)	1.00
Yes	7003 (86.2)	1.64 (1.34–2.00) ^f	4385 (53.9)	1.19 (1.00–1.41)
Prenatal and postpartum				
None	546 (68.5)	1.00	264 (31.8)	1.00
One (prenatal or postpartum only)	1705 (81.4)	2.01 (1.55–2.59) ^f	1033 (48.6)	2.10 (1.65–2.67) ^f
Both (prenatal and postpartum)	5809 (87.2)	2.74 (2.18–3.45) ^f	3731 (56.0)	2.33 (1.87–2.89) ^f
<i>P</i> for trend	< .0001		< .0001	

AOR, adjusted odds ratio; CI, confidence interval; PRAMS, pregnancy risk assessment monitoring system.

^a Missouri, New York City, and New York; ^b Includes female sterilization, male sterilization, intrauterine device, implant, pills, patch, ring, or shots; ^c Includes condoms, diaphragm, cervical cap, sponge, withdrawal, rhythm method, or natural family planning; ^d Unweighted n, weighted percentage; ^e Adjusted for maternal age, race/ethnicity, marital status, education, type of insurance before pregnancy, pregnancy intention of most recent live birth, number of previous live births, currently breast-feeding, time since pregnancy (months), reporting area, year, receipt of postpartum contraceptive counseling (for prenatal contraceptive counseling), and receipt of prenatal contraceptive counseling (for postpartum contraceptive counseling); ^f Statistically significant at $P < .05$.

Zapata. Counseling and postpartum contraception. *Am J Obstet Gynecol* 2015.

women with nonprivate health insurance during pregnancy have a greater likelihood of using effective contraceptives postpartum including female sterilization and intrauterine devices^{18,19} and have suggested that underinsured women choose methods that do not require regular contact with the health care system, given their inconsistent contraceptive coverage.¹⁸ Provider and patient preferences may also play a role.

Similar to our findings, state-specific analyses of Florida and New Mexico PRAMS data found positive associations between prenatal contraceptive counseling and use of contraception postpartum.^{9,10} Other analyses have found increased postpartum contraceptive use among women who received a postpartum care visit,^{9,12} likely because the visit allows women and providers to discuss family planning and providers to initiate or prescribe contraceptives. However, not all women attending postpartum care visits receive contraceptive

counseling. In our sample, 12% of women attending a postpartum care visit reported not discussing birth control with a doctor, nurse, or other health care worker after the birth of their new baby.

Results from our analysis showed that prenatal and postpartum contraceptive counseling increased the use of any and more effective methods. However, even among women who reported receiving no counseling, 69% reported some postpartum contraceptive use, but only 32% reported using more effective methods. Although many of the most effective methods require little ongoing effort to use correctly and continuously, they do require provider initiation.

Provider counseling and method initiation before hospital discharge may be a practical strategy to increase postpartum use of effective contraceptives because women are already within the health care system and may not return for follow-up postpartum care visits.⁷ Also, because the majority of the

postpartum women in our sample reported the use of pills or condoms, counseling on LARCs including intrauterine devices and implants may increase their use. One study found postpartum LARC use to be highest among the women who attended more prenatal care visits,²⁰ possibly because of greater opportunity to discuss options.

Counseling strategies may consider past and future pregnancy intentions. In our sample, 1 of 4 women not using contraception reported wanting to get pregnant. These women would benefit from counseling on the potential risks of short IPIs.^{4,21-23} Also, evidence suggests that women with a prior UIP or not desiring pregnancy within 2 years have increased interest in LARC methods.^{1,24,25}

We considered several limitations. First, we did not have detailed information about the contraceptive counseling received such as content, depth, time spent, where it occurred (eg, delivery

TABLE 3

Associations between contraceptive counseling and postpartum contraceptive use, stratified by insurance status before pregnancy,^a PRAMS, 3 reporting areas,^b 2004–2008 (n = 9536)

Prenatal and postpartum contraceptive counseling	Use of a more effective ^c contraceptive method (vs less effective ^d or no method)	
	n (%) ^e	AOR (95% CI) ^f
No insurance before pregnancy		
None	58 (28.3)	1.0
One (prenatal or postpartum only)	242 (54.5)	3.02 (1.76–5.16) ^g
Both (prenatal and postpartum)	1000 (61.1)	3.51 (2.18–5.66) ^g
P for trend	< .0001	
Medicaid (no private) insurance before pregnancy		
None	28 (26.9)	1.0
One (prenatal or postpartum only)	119 (48.1)	2.44 (1.22–4.88) ^g
Both (prenatal and postpartum)	486 (66.7)	3.74 (1.98–7.06) ^g
P for trend	< .0001	
Private insurance before pregnancy		
None	178 (34.1)	1.00
One (prenatal or postpartum only)	669 (46.8)	1.81 (1.36–2.42) ^g
Both (prenatal and postpartum)	2239 (52.1)	1.87 (1.44–2.43) ^g
P for trend	< .0001	

AOR, adjusted odds ratio; CI, confidence interval; PRAMS, pregnancy risk assessment monitoring system.

^a Interaction term between contraceptive counseling during both time periods (prenatal and postpartum) and use of a more effective contraceptive method was statistically significant at $P < .05$; ^b Missouri, New York City, and New York; ^c Includes female sterilization, male sterilization, intrauterine device, implant, pills, patch, ring, or shots; ^d Includes condoms, diaphragm, cervical cap, sponge, withdrawal, rhythm method, or natural family planning; ^e Unweighted n, weighted percentage; ^f Adjusted for maternal age, race/ethnicity, marital status, education, type of insurance before pregnancy, pregnancy intention of most recent live birth, number of previous live births, currently breast-feeding, time since pregnancy (months), reporting area, and year; ^g Statistically significant at $P < .05$.

Zapata. Counseling and postpartum contraception. *Am J Obstet Gynecol* 2015.

hospitalization, postpartum outpatient care visit), or number of times women were counseled. Second, because PRAMS data are self-reported by women up to 12 months after delivery, responses might be subject to social desirability or recall bias. Third, because of survey skip patterns, information was not obtained about contraceptive methods used by women who might have incorrectly reported that they were not doing anything currently to keep from getting pregnant. If this occurred, particularly among respondents who had a tubal ligation or whose partner had a vasectomy, the use of effective contraceptive methods might have been underestimated. Additionally, the survey did not ascertain

the use of the lactational amenorrhea method, and we could not estimate the lactational amenorrhea method use, given the limited breast-feeding information collected by PRAMS.

Lastly, even though the analysis was conducted using a large population-based sample, we were able to report the findings from only 3 reporting areas, limiting the generalizability of the findings. Although the prevalence of UIP in our sample of women with a recent live birth was lower (35%) than the national average (49%),¹ national estimates account for UIPs ending in births, abortions, and fetal losses^{1,25}; the UIP in our sample was similar to other PRAMS estimates.¹¹ Despite these limitations,

our analysis contributes to the literature by specifically examining contraceptive counseling during both the prenatal and postpartum periods.

Providing contraceptive counseling during prenatal and postpartum periods can be important in increasing postpartum contraceptive use, thereby reducing UIP and short IPIs. Institutionalizing documentation of contraceptive counseling at prenatal and postpartum medical visits through protocols and staff training may ensure that women receive counseling during medical visits.

Several promising approaches for providing quality contraceptive counseling have been identified and can be incorporated into practice; these include emphasizing the quality of the interaction between provider and client, personalizing discussions to meet clients' individual needs, addressing psychosocial determinants of contraceptive use behavior, setting goals and developing action plans to deal with anticipated difficulties, and multiple client contacts.^{26,27}

Although counseling should include consideration of the full range of postpartum contraceptive options that are medically appropriate, providers are encouraged to counsel using a tiered approach (ie, presenting information on the most effective methods before presenting information on less effective methods).²⁷ According to the Centers for Disease Control and Prevention's *US Medical Eligibility Criteria for Contraceptive Use* (2010),^{28,29} most contraceptive options are considered safe during the postpartum period including many effective methods. ■

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REFERENCES

- Finer LB, Zolna MR. Unintended pregnancy in the United States: incidence and disparities, 2006. *Contraception* 2011;84:478-85.
- Gemmill A, Lindberg LD. Short interpregnancy intervals in the United States. *Obstet Gynecol* 2013;122:64-71.

3. Gipson JD, Koenig MA, Hindin MJ. The effects of unintended pregnancy on infant, child, and parental health: a review of the literature. *Stud Fam Plann* 2008;39:18-38.
4. Conde-Agudelo A, Rosas-Bermudez A, Kafury-Goeta AC. Birth spacing and risk of adverse perinatal outcomes: a meta-analysis. *JAMA* 2006;295:1809-23.
5. Thiel de Bocanegra H, Chang R, Howell M, Darney P. Interpregnancy intervals: impact of postpartum contraceptive effectiveness and coverage. *Am J Obstet Gynecol* 2014;210:311.e1-8.
6. Centers for Disease Control and Prevention. Contraceptive use among postpartum women—12 states and New York City, 2004–2006. *MMWR Morb Mortal Wkly Rep* 2009;58:821-6.
7. American Academy of Pediatrics, American College of Obstetricians and Gynecologists. Guidelines for perinatal care, 7th ed. Washington, DC: American College of Obstetricians and Gynecologists; 2012.
8. Cwiak C, Gellasch T, Ziemann M. Peripartum contraceptive attitudes and practices. *Contraception* 2004;70:383-6.
9. DePineres T, Blumenthal PD, Diener-West M. Postpartum contraception: the New Mexico Pregnancy Risk Assessment Monitoring System. *Contraception* 2005;72:422-5.
10. Hernandez LE, Sappenfield WM, Goodman D, Pooler J. Is effective contraceptive use conceived prenatally in Florida? The association between prenatal contraceptive counseling and postpartum contraceptive use. *Matern Child Health J* 2012;16:423-9.
11. Krans EE, Davis MM, Schwarz EB. Psychosocial risk, prenatal counseling and maternal behavior: findings from PRAMS, 2004–2008. *Am J Obstet Gynecol* 2013;208:141.e1-7.
12. Wilson EK, Fowler CI, Koo HP. Postpartum contraceptive use among adolescent mothers in seven states. *J Adolesc Health* 2013;52:278-83.
13. Shulman HB, Gilbert BC, Msphbrenda CG, Lansky A. The Pregnancy Risk Assessment Monitoring System (PRAMS): current methods and evaluation of 2001 response rates. *Public Health Rep (Washington, DC : 1974)* 2006;121:74-83.
14. Trussell J. Contraceptive failure in the United States. *Contraception* 2011;83:397-404.
15. Markus AR, Rosenbaum S. The role of Medicaid in promoting access to high-quality, high-value maternity care. *Womens Health Issues* 2010;20(Suppl 1):S67-78.
16. Cherry DK, Hing E, Woodwell DA, Rechtsteiner EA. National Ambulatory Medical Care Survey: 2006 summary. *Natl Health Stat Rep* 2008;6:1-39.
17. Guttmacher Institute. State policies in brief: Medicaid family planning eligibility expansions. New York, NY: Guttmacher Institute; 2013.
18. White K, Potter JE, Hopkins K, Grossman D. Variation in postpartum contraceptive method use: results from the Pregnancy Risk Assessment Monitoring System (PRAMS). *Contraception* 2014;89:57-62.
19. Whiteman MK, Cox S, Tepper NK, et al. Postpartum intrauterine device insertion and postpartum tubal sterilization in the United States. *Am J Obstet Gynecol* 2012;206:127.e1-7.
20. Simmons KB, Edelman AB, Li H, Yanit KE, Jensen JT. Personalized contraceptive assistance and uptake of long-acting, reversible contraceptives by postpartum women: a randomized, controlled trial. *Contraception* 2013;88:45-51.
21. Conde-Agudelo A, Rosas-Bermudez A, Castano F, Norton MH. Effects of birth spacing on maternal, perinatal, infant, and child health: a systematic review of causal mechanisms. *Stud Fam Plann* 2012;43:93-114.
22. DeFranco EA, Stamilio DM, Boslaugh SE, Gross GA, Muglia LJ. A short interpregnancy interval is a risk factor for preterm birth and its recurrence. *Am J Obstet Gynecol* 2007;197:264.e1-6.
23. Zhu BP. Effect of interpregnancy interval on birth outcomes: findings from three recent US studies. *Int J Gynaecol Obstet* 2005;89(Suppl 1):S25-33.
24. Tang JH, Dominik R, Re S, Brody S, Stuart GS. Characteristics associated with interest in long-acting reversible contraception in a postpartum population. *Contraception* 2013;88:52-7.
25. Kost K, Finer LB, Singh S. Variation in state unintended pregnancy rates in the United States. *Perspect Sex Reprod Health* 2012;44:57-64.
26. Zapata LB, Pazol K. Evidence to practice: contraceptive counseling and education. Part of Symposium on the United States' Family Planning Program (Title X)—translating research into practice. In: Gavin L, ed. Presented at the 17th Annual Maternal and Child Health Epidemiology (MCH Epi) Conference, 2011, New Orleans, LA: Centers for Disease Control and Prevention.
27. Gavin L, Moskosky S, Carter M, et al. Providing quality family planning services: recommendations of CDC and the US Office of Population Affairs. Centers for Disease Control and Prevention. *MMWR Recommend Rep Morb Mortal Wkly* 2014;63(Rr-04):1-54.
28. Centers for Disease Control and Prevention. US medical eligibility criteria for contraceptive use, 2010. Centers for Disease Control and Prevention. *MMWR Recommend Rep Morb Mortal Wkly Rep* 2010;59(RR-4):1-86.
29. Centers for Disease Control and Prevention. Update to CDC's US medical eligibility criteria for contraceptive use, 2010: revised recommendations for the use of contraceptive methods during the postpartum period. *MMWR Morb Mortal Wkly Rep* 2011;60:878-83.