

# PEDIATRICS®

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

## **Why Do Women Stop Breastfeeding? Findings From the Pregnancy Risk Assessment and Monitoring System**

Indu B. Ahluwalia, Brian Morrow and Jason Hsia

*Pediatrics* 2005;116:1408-1412

DOI: 10.1542/peds.2005-0013

The online version of this article, along with updated information and services, is located on the World Wide Web at:

<http://www.pediatrics.org/cgi/content/full/116/6/1408>

PEDIATRICS is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. PEDIATRICS is owned, published, and trademarked by the American Academy of Pediatrics, 141 Northwest Point Boulevard, Elk Grove Village, Illinois, 60007. Copyright © 2005 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 0031-4005. Online ISSN: 1098-4275.

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™



# Why Do Women Stop Breastfeeding? Findings From the Pregnancy Risk Assessment and Monitoring System

Indu B. Ahluwalia, MPH, PhD\*; Brian Morrow, MA‡; and Jason Hsia, PhD‡

**ABSTRACT.** *Objective.* We examined breastfeeding behaviors, periods of vulnerability for breastfeeding cessation, reasons for breastfeeding cessation, and the association between predelivery intentions and breastfeeding behaviors.

*Study Design.* Using 2 years (2000 and 2001) of data from the Pregnancy Risk Assessment and Monitoring System we assessed the percentage of women who began breastfeeding, continued for <1 week, continued for 1 to 4 weeks, and continued for >4 weeks and their reasons for not initiating or stopping. Predelivery breastfeeding intentions of women and their relationship with subsequent breastfeeding behaviors were examined also.

*Results.* We found that 32% of women did not initiate breastfeeding, 4% started but stopped within the first week, 13% stopped within the first month, and 51% continued for >4 weeks. Younger women and those with limited socioeconomic resources were more likely to stop breastfeeding within the first month. Reasons for cessation included sore nipples, inadequate milk supply, infant having difficulties, and the perception that the infant was not satiated. Women who intended to breastfeed, thought they might breastfeed, or had ambivalent feelings about breastfeeding were more likely to initiate breastfeeding and to continue through the vulnerable periods of early infancy than were those who did not plan to breastfeed.

*Conclusions.* Our findings indicate a need to provide extensive breastfeeding support after delivery, particularly to women who may experience difficulties in breastfeeding. *Pediatrics* 2005;116:1408–1412; *breastfeeding, behavioral intentions, maternal, child health.*

---

ABBREVIATIONS. WIC, Special Supplemental Nutrition Program for Women, Infants, and Children; ETS, environmental tobacco smoke; PRAMS, Pregnancy Risk Assessment Monitoring System; CI, confidence interval.

---

The health benefits of breastfeeding have been documented by numerous studies: breastfed infants are healthier; breastfed infants experience fewer episodes of illnesses such as otitis media, upper respiratory infection, and gastrointestinal dis-

order; and breastfeeding may even be protective against postnatal deaths in the United States.<sup>1–3</sup> Breastfeeding also strengthens the infant-mother bond, reduces or eliminates the cost of purchasing formula, improves cognitive development among low birth weight infants, and saves health care dollars by reducing illness.<sup>3–6</sup> Although breastfeeding rates in the United States continue to increase, they remain relatively low among certain racial/ethnic populations and among lower-income groups.<sup>7,8</sup>

Various initiatives have attempted to increase breastfeeding in the United States, including policies or strategies to address the low rates observed among certain population groups.<sup>9–19</sup> A few initiatives have also recommended the promotion of breastfeeding by programs through which pregnant and lactating women may seek health services, such as the Supplemental Nutrition Program for Women, Infants, and Children (WIC), which was established under the Reauthorization Act of 1988. The WIC program serves ~45% of all infants born in the United States (additional information about the WIC program can be found at [www.fns.usda.gov/wic/aboutwic](http://www.fns.usda.gov/wic/aboutwic)). It is encouraging that numerous studies have shown that rates of breastfeeding initiation and maintenance have increased among all population sectors over the past decade, including low-income groups.<sup>7,8,15–19</sup> A recent review of breastfeeding strategies shows that lactating women who receive professional support breastfeed longer than those who do not.<sup>20</sup> Despite these overall increases, however, many women never start breastfeeding. In addition, many others stop breastfeeding shortly after they start. Factors known to be associated with not breastfeeding and with early breastfeeding cessation include smoking, exposure to environmental tobacco smoke (ETS), maternal medication use, physical and mental problems such as obesity and depression, and circumstances that make breastfeeding difficult such as going back to work or school.<sup>21–32</sup>

To better understand women's breastfeeding decisions and behaviors and to develop strategies to promote breastfeeding during the critical periods before and after delivery, we used data from the Pregnancy Risk Assessment and Monitoring System (PRAMS) to examine several factors that may be associated with breastfeeding behaviors. We further attempted to determine why women stopped breastfeeding during certain intervals. Given the important role of a person's behavioral intention in determining that person's actual behavior,<sup>33</sup> we also at-

From the Divisions of \*Adult and Community Health, and ‡Reproductive Health, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, Atlanta, Georgia.

Accepted for publication Feb 28, 2005.

doi:10.1542/peds.2005-0013

No conflict of interest declared.

Address correspondence to Indu B. Ahluwalia, MPH, PhD, Division of Adult and Community Health, Centers for Disease Control and Prevention, 4770 Buford Hwy, NE, Mailstop K-66, Atlanta, GA 30341-3724. E-mail: [iahlwalia@cdc.gov](mailto:iahlwalia@cdc.gov)

PEDIATRICS (ISSN 0031 4005). Published in the public domain by the American Academy of Pediatrics.

tempted to determine the extent to which women's predelivery intentions regarding breastfeeding affected their subsequent infant feeding behaviors.

## METHODS

The PRAMS collects information on maternal behaviors and experiences during pregnancy from 31 states and New York City, New York. It uses a standardized mail and telephone data-collection methodology, the details of which are available at [www.cdc.gov/reproductivehealth/PRAMS/methodology.htm](http://www.cdc.gov/reproductivehealth/PRAMS/methodology.htm). Each month, participating projects select a stratified random sample of 100 to 250 women with recent live-born deliveries on the basis of their child's birth certificates. A questionnaire is mailed to the selected mothers ~2 to 6 months after delivery. Sample weights are used to correct for the variation in stratification methods used by each project. The core PRAMS questions are the same for all projects. Some information from the birth certificate is added to the overall PRAMS data set. The overall data are statistically weighted to adjust for the survey design, noncoverage, and nonresponse so that they are representative of all women with a live birth in the particular jurisdiction.

For the purposes of this study, we pooled 2000 and 2001 data from 10 states (Arkansas, Colorado, Illinois, Louisiana, Maine, New York, Ohio, Oklahoma, Utah, and West Virginia) that collected data on the questions of interest and the response rates of which were  $\geq 70\%$ . We examined women's reasons for not initiating breastfeeding and the reasons that those who did begin breastfeeding stopped. In addition, we analyzed written comments from 1300 women who did not initiate breastfeeding and 885 who initiated breastfeeding but stopped. We also examined predelivery breastfeeding intention and its relationship with breastfeeding behavior among 6720 women in Arkansas and Ohio, the only 2 states that collected this information. The women's breastfeeding intention was assessed by the multiple-choice question, "During your most recent pregnancy, what did you think about breastfeeding your new infant?" The answer choices were (a) I knew I would breastfeed, (b) I thought I might breastfeed, (c) I knew I would not breastfeed, and (d) I didn't know what to do about breastfeeding.

Breastfeeding initiation was defined as starting to breastfeed in the early postpartum period. Categories of breastfeeding duration were  $< 1$  week ( $n = 1105$ ), 1 to 4 weeks ( $n = 4687$ ), and  $> 4$  weeks ( $n = 16\ 094$ ). The last category included women who reported still breastfeeding when the survey was completed ( $n = 10\ 477$ ) as well as those who had stopped breastfeeding after the first month ( $n = 5617$ ). We also analyzed data on the specific reasons for stopping breastfeeding. We chose these cut points to examine factors affecting women's breastfeeding decisions in the early postpartum period. Furthermore, the cut points are in adherence with the preventive pediatric health care guidelines developed by the American Academy of Pediatrics, which recommend several well-child visits after newborns are discharged from the hospital, including one 2 to 4 days after discharge and another 1 month afterward. Breastfeeding is one of the topics that the guidelines recommend that pediatricians cover during these visits.<sup>34</sup>

We classified women's reasons for not breastfeeding into 3 general categories: household responsibilities, individual reasons, and circumstances. Household responsibilities included having other children to take care of and household duties. Individual reasons included not liking breastfeeding, not wanting to be tied down, being embarrassed, and wanting the body back to self. The circumstances category included going back to work or school and having a partner who didn't want the woman to breastfeed. Women's reasons for breastfeeding cessation were examined in relation to the length of time that they breastfed. The format of the questions soliciting this information allowed women to choose  $> 1$  response category.

We also examined the relationship between breastfeeding and several demographic variables (eg, race, education, age), behavioral or lifestyle risk factors (ie, cigarette smoking, ETS exposure, maternal prepregnancy BMI [weight (kg)/height (m<sup>2</sup>)],<sup>35</sup> and other factors (eg, mode of delivery, infant birth weight, and participation in WIC). Missing data ranged from 0.02% for maternal age to 5.23% for prepregnancy BMI. We used software for survey data analysis (SUDAAN; Research Triangle Institute, Research Triangle Park, NC) to account for the complex survey design. This

study was approved by the Centers for Disease Control and Prevention Institutional Review Board.

## RESULTS

We found that 32% of the women did not initiate breastfeeding, 4% initiated but stopped within the first week postpartum, 13% breastfed their infants for 1 to 4 weeks, and 51% continued for  $> 4$  weeks (Table 1). Of the women who continued beyond the first month, 31% had stopped by the time they responded to the survey, ~2 to 6 months postpartum. As shown in Table 1, 53% of black women did not initiate breastfeeding, and only 31% continued beyond the first month. Women younger than 25 years of age were less likely to initiate and continue breastfeeding than were older women. Others less likely to initiate breastfeeding included women with less than a high school education, those who were not married, those who smoked cigarettes, those whose infant was exposed to second-hand smoke, those who delivered a low birth weight infant, and those who participated in WIC (Table 1).

Among the 32% of women who did not initiate breastfeeding, 55.1% cited individual reasons, 30.5% cited household responsibilities, and 29.0% cited other circumstances as their reasons for not doing so. Of the 1300 written responses from women who did not initiate breastfeeding, 10.5% stated that they did not because they were using some type of medication (eg, Prozac, antidepressants, birth control pills, or Depo-Provera), 5.5% because they smoked cigarettes, and 4% because they had twins. The rest of the women had a variety of other reasons including prior breast-alteration surgeries.

The major reasons that women cited for stopping breastfeeding early were sore nipples, perceptions of not producing enough milk, and their infant having difficulty breastfeeding or not being satisfied with breast milk. The pattern of reasons cited for stopping breastfeeding shifted a bit among women who stopped after 4 weeks, who were more likely to say that it was the right time to stop or that work and school commitments prevented them from continuing (Table 2). In their written responses, 20% of the women who stopped early said that they did so because their breasts dried up or they were not producing enough milk, 15% because their infants stayed in the hospital or they had multiple infants to feed and their situation became difficult to manage, and the rest of the women for other reasons (including going back to using birth control, smoking, using prescription drugs, and other children becoming jealous of the infant).

As discussed earlier, intentions are the primary determinants of whether an individual is going to engage in a specific behavior. We used data from Arkansas and Ohio to assess the relationship between women's breastfeeding intentions and their subsequent behavior. Before delivery, 49.6% (95% confidence interval [CI]: 47.7–51.6%) of these women had planned to breastfeed, 16.3% (95% CI: 14.9–17.7%) thought that they might breastfeed, 4.5% (95% CI: 3.7–5.3%) were not sure what they were going to do, and 29.6% (95% CI: 27.8–31.3%) did not intend to

**TABLE 1.** Duration of Breastfeeding Among Women With Recent Live Births According to Demographic and Other Risk Factors: PRAMS, 2000–2001

	Not Initiated (n = 10 808), % (95% CI)	Stopped After <1 wk (n = 1105), % (95% CI)	Breastfed for 1–4 wk (n = 4687), % (95% CI)	Breastfed for >4 wk (n = 16 094), % (95% CI)
Overall	32.4 (31.6–33.2)	3.6 (3.3–3.9)	13.3 (12.8–13.9)	50.7 (49.8–51.5)
Race				
White	29.4 (28.5–30.3)	3.5 (3.1–3.8)	13.7 (13.0–14.3)	53.4 (52.5–54.4)
Black	53.1 (51.1–55.1)	4.0 (3.2–4.7)	11.7 (10.4–13.1)	31.2 (29.3–33.2)
Other	19.0 (15.7–22.3)	4.4 (2.5–6.2)	12.3 (9.5–15.1)	64.3 (60.1–68.4)
Maternal age, y				
<19	45.2 (42.7–47.6)	5.4 (4.3–6.6)	20.7 (18.6–22.8)	28.7 (26.5–31.0)
20–24	38.5 (36.9–40.1)	4.7 (4.0–5.4)	16.4 (15.2–17.6)	40.4 (38.8–42.0)
25–34	28.3 (27.2–29.3)	3.0 (2.6–3.4)	11.2 (10.5–12.0)	57.5 (56.3–58.7)
≥35	24.7 (22.6–26.8)	2.2 (1.5–2.9)	8.9 (7.5–10.2)	64.3 (62.0–66.6)
Education				
<High school	46.0 (44.0–48.0)	4.3 (3.5–5.2)	15.2 (13.7–16.6)	34.5 (32.6–36.5)
High school	42.8 (41.3–44.2)	4.1 (3.5–4.7)	15.0 (14.0–16.0)	38.2 (36.8–39.6)
>High school	20.8 (19.8–21.8)	3.0 (2.6–3.4)	11.5 (10.8–12.3)	64.6 (63.5–65.8)
Marital status				
Married	25.1 (24.2–26.0)	3.1 (2.7–3.4)	12.0 (11.3–12.7)	60.0 (58.9–61.1)
Other	47.8 (46.3–49.3)	4.7 (4.0–5.3)	15.5 (14.5–16.5)	36.1 (34.8–37.4)
BMI*				
Low (<19.8 kg/m <sup>2</sup> )	33.0 (30.9–35.1)	4.1 (3.2–5.1)	13.3 (11.8–14.8)	49.6 (47.4–51.8)
Normal (19.8–26 kg/m <sup>2</sup> )	29.4 (28.3–30.5)	3.3 (2.9–3.8)	13.5 (12.7–14.3)	53.8 (52.6–55.0)
High (>26–29 kg/m <sup>2</sup> )	32.5 (30.3–34.8)	3.5 (2.6–4.4)	13.0 (11.3–14.6)	51.0 (48.6–53.5)
Very high (>29 kg/m <sup>2</sup> )	39.4 (37.5–41.3)	4.4 (3.6–5.1)	13.2 (11.9–14.4)	43.1 (41.2–45.0)
Maternal smoking				
No	28.5 (27.6–29.3)	3.5 (3.2–3.9)	12.9 (12.3–13.5)	55.2 (54.3–56.1)
Yes	53.5 (51.2–55.8)	4.0 (3.1–4.9)	16.3 (14.6–18.0)	26.2 (24.2–28.1)
ETS				
Infant exposed	50.2 (47.8–52.5)	4.6 (3.6–5.6)	15.6 (13.9–17.3)	29.7 (27.5–31.8)
Not exposed	29.6 (28.8–30.4)	3.4 (3.1–3.7)	13.0 (12.4–13.6)	54.0 (53.1–54.9)
Pregnancy				
Intended pregnancy	26.2 (25.2–27.2)	3.1 (2.7–3.5)	11.9 (11.2–12.6)	58.8 (57.7–59.9)
Unintended pregnancy	40.8 (39.5–42.1)	4.2 (3.7–4.7)	15.3 (14.4–16.3)	39.7 (38.4–40.9)
Birth weight				
Low (<2500g)	39.2 (37.9–40.6)	2.9 (2.5–3.3)	15.9 (15.0–16.8)	41.9 (40.7–43.2)
Normal (≥2500g)	31.9 (31.1–32.7)	3.6 (3.3–4.0)	13.2 (12.6–13.8)	51.3 (50.4–52.2)
Delivery				
Vaginal	31.4 (30.5–32.3)	3.5 (3.1–3.9)	12.9 (12.2–13.5)	52.2 (51.3–53.2)
Cesarean	36.1 (34.4–37.7)	4.0 (3.3–4.7)	14.6 (13.4–15.9)	45.3 (43.6–47.0)
WIC participation				
No	25.1 (24.1–26.0)	3.0 (2.6–3.4)	12.0 (11.3–12.7)	60.0 (58.9–61.1)
Yes	43.8 (42.5–45.1)	4.6 (4.0–5.1)	15.5 (14.5–16.5)	36.1 (34.8–37.4)

\* Cutoff points are based on Institute of Medicine recommendations.<sup>35</sup>

**TABLE 2.** Reasons for Breastfeeding Cessation According to Length of Time That Infants Were Breastfed: PRAMS, 2000–2001

Reason*	<1 wk (n = 1105), % (95% CI)	1–4 wk (n = 4687), % (95% CI)	>4 wk (n = 5617), % (95% CI)
Sore/cracked/bleeding nipples	34.9 (30.0–39.8)	30.2 (27.8–32.6)	12.9 (11.4–14.5)
Not producing enough milk	28.1 (23.7–32.6)	38.8 (36.3–41.3)	37.1 (34.8–39.3)
Sick/couldn't breastfeed	7.0 (4.4–9.5)	7.9 (6.5–9.3)	5.5 (4.6–6.5)
Baby had difficulty	48.4 (43.3–53.4)	34.0 (31.5–36.4)	15.3 (13.7–16.9)
Baby not satisfied with breast milk	22.2 (18.1–26.3)	38.6 (36.1–41.1)	42.4 (40.1–44.7)
Baby not gaining enough weight	9.8 (6.6–12.9)	10.4 (8.9–11.9)	8.8 (7.4–10.2)
Baby sick/couldn't breastfeed	3.9 (2.0–5.8)	3.4 (2.5–4.2)	3.1 (2.4–3.9)
Too many other responsibilities	8.0 (5.3–10.8)	11.4 (9.8–13.0)	12.5 (11.0–14.0)
Right time to stop	4.3 (2.2–6.5)	8.2 (6.8–9.7)	21.8 (19.8–23.7)
Work/school	7.3 (4.7–9.9)	14.2 (12.4–16.0)	35.0 (32.8–37.2)
Partner wanted to stop	2.8 (1.0–4.6)	1.6 (0.9–2.2)	1.7 (1.1–2.3)
Someone else to feed the baby	8.5 (5.7–11.4)	9.9 (8.4–11.3)	10.7 (9.3–12.0)
Other†	29.3 (24.7–34.0)	25.2 (23.1–27.4)	25.3 (23.3–27.3)

\* Women could give >1 reason for breastfeeding cessation.

† Women who picked the "other" category wrote in responses; of these, 20% said that their breasts dried up, ~15% had multiple infants or infants were hospitalized for a long period of time, and the rest gave a variety of other reasons.

breastfeed. The vast majority of women who planned to breastfeed before delivery initiated breastfeeding, whereas most of those who did not plan to breastfeed did not initiate breastfeeding. Of those women who thought that they might breastfeed, 68.5% (95%

CI: 64.1–72.8%) actually did so, and of those who did not know what they were going to do, 41.1% (95% CI: 32.1–50.1%) initiated breastfeeding (Table 3). A majority of women who had a positive or somewhat positive disposition toward breastfeeding initiated

**TABLE 3.** Women's Predelivery Intention and Postdelivery Breastfeeding Behaviors: PRAMS, 2000–2001\*

Predelivery Intention	Breastfeeding Behaviors, % (95% CI)				
	Breastfeeding Initiated		Duration of Breastfeeding Among Those Who Began		
	No ( <i>n</i> = 2720)	Yes ( <i>n</i> = 3815)	< 1 wk ( <i>n</i> = 306)	1–4 wk ( <i>n</i> = 975)	> 4 wk ( <i>n</i> = 2534)
Planned to breastfeed	1.4 (0.8–2.0)	98.6 (98.0–99.2)	2.2 (1.4–3.0)	17.2 (15.0–19.3)	80.6 (78.3–82.8)
Might breastfeed	31.5 (27.2–35.9)	68.5 (64.1–72.8)	21.7 (17.0–26.5)	36.7 (31.1–42.3)	41.6 (35.7–47.5)
Intentions uncertain	58.9 (49.9–67.9)	41.1 (32.1–50.1)	28.8 (15.6–42.1)	36.5 (23.6–49.3)	34.7 (21.6–47.8)
Did not plan to breastfeed	98.0 (97.1–99.0)	2.0 (1.0–2.9)	50.6 (26.4–74.9)	31.2 (7.7–54.7)	18.2 (5.7–30.7)

\* Only Arkansas and Ohio collect data on women's predelivery breastfeeding intention (*n* = 6720).

and continued breastfeeding through the first 4 weeks. A multivariable model adjusted for demographic and other factors indicated that, compared with women who did not plan to breastfeed, those who intended to breastfeed were significantly more likely (adjusted odds ratio: 14.3; 95% CI: 4.7–43.5) to breastfeed for  $\geq 4$  weeks.

### DISCUSSION

Most of the women in this study initiated breastfeeding, and approximately half of them continued beyond the first month after their child's birth. The most common reasons for breastfeeding cessation during the early postnatal period had to do with the physical discomforts of breastfeeding and women's uncertainty about the adequacy of their milk production and the satisfaction of their infant. Later cessation of breastfeeding was more likely to be because of the perceived inadequacy of breast milk or changes in a woman's circumstances such as going back to work or school. We found that women's predelivery intentions about breastfeeding were strong predictors of both initiating this behavior and continuing it through the vulnerable postdelivery period when women may experience the most discomfort.

Our findings highlight several important aspects of women's decisions about breastfeeding and provide insight into potential barriers to continuation. One of these is the important role that breastfeeding intentions may play in determining women's actual decisions. Findings point toward potential discussions between women and their providers during the prenatal period in which the issues of women's perceptions, feelings, and any prior experiences of this behavior along with perceived or actual limitations that may be posed by women's use of tobacco, prescription drugs, and birth control should be discussed. For example, many of the physical discomforts can be prevented or treated, and according to American Academy of Pediatrics guidelines, very few medications are a contraindication to breastfeeding.<sup>26</sup> Other issues of concern that pediatricians can address include human milk production, the frequency of breastfeeding, indicators that the infant is getting enough milk, and how medication use and changing circumstances can affect breastfeeding.

Similar to previous research, we found that women who do not initiate breastfeeding are more likely to be young, black, WIC clients, obese before pregnancy, and cigarette smokers and more likely to have reported their pregnancy to be unintended.<sup>7,8</sup>

Because many women in socially or economically disadvantaged situations may have fewer opportunities to learn about breastfeeding, it is crucial that prenatal care providers, hospital staff, and programs such as WIC play a critical role in promoting and supporting breastfeeding and in reinforcing women's decision to breastfeed. Furthermore, it is important for providers to consider women's perceptions about breastfeeding, promote positive intentions toward breastfeeding, and identify resources useful to women attempting to breastfeed. Research shows that strategies aimed at low-income groups can increase rates of breastfeeding initiation and increase the duration of breastfeeding and that professional support in the early postpartum period is critical.<sup>15–19</sup>

Providing women with adequate information about common breastfeeding obstacles and access to a lactation consultant during the early postpartum period may help them to overcome these barriers. For example, prenatal and postnatal programs can help prepare women to deal with issues associated with early breastfeeding cessation, and support and community-level programs can help promote breastfeeding as the infant grows.<sup>18–20</sup> Indeed, these programs should help breastfeeding women continue to breastfeed after they return to work or school for as long as it is nutritionally beneficial.<sup>12,18,19,27,28</sup>

This study has several limitations. The results are generalizable only to the 10 states from which data were analyzed; the breastfeeding-intention data were only available for 2 states; and the cross-sectional nature of the data did not allow us to make any causal inferences. However, the PRAMS data did allow us to examine breastfeeding initiation and continuation and to identify women's reasons for continuing or stopping this behavior. The results of this examination may be useful in developing or modifying existing programs that are better able to provide services and resources to pregnant and lactating women and to guide prenatal and postnatal health care visits.

The results of our study suggest the importance of providing knowledgeable and supportive staff, including lactation counselors, to assist women who have recently given birth to overcome various obstacles to breastfeeding. In addition, the findings also indicate a need for prenatal discussions between pregnant women and their health care providers about breastfeeding intentions, the goals of which should include developing plans for overcoming

common breastfeeding problems and identifying resources and support mechanisms to which women can turn after delivery. Such strategies may help women to continue breastfeeding long enough for their infants to fully benefit from the high nutritional value of breast milk. In sum, adequate interventions during pregnancy and soon after delivery will assist women in making the optimal infant-feeding choices for themselves and their infants.

## REFERENCES

- Chen A, Rogan W. Breastfeeding and the risk of postnatal death in the United States. *Pediatrics*. 2004;113(5). Available at: [www.pediatrics.org/cgi/content/full/113/5/e435](http://www.pediatrics.org/cgi/content/full/113/5/e435)
- Cunningham AS, Jelliffe DB, Jelliffe EF. Breast-feeding and health in the 1980s: a global epidemiologic review. *J Pediatr*. 1991;118:659–666
- Raisler J, Alexander C, O'Campo P. Breast-feeding and infant illness: a dose-response relationship. *Am J Public Health*. 1999;89:25–30
- Ball TM, Wright AL. Health care costs of formula-feeding in the first year of life. *Pediatrics*. 1999;103:870–876
- Montgomery DL, Splett PL. Economic benefit of breast-feeding infants enrolled in WIC. *J Am Diet Assoc*. 1997;97:379–385
- Anderson JW, Johnstone BM, Remley DT. Breast-feeding and cognitive development: a meta-analysis. *Am J Clin Nutr*. 1999;70:525–535
- Ryan AS, Wenjun Z, Acosta A. Breastfeeding continues to increase into the new millennium. *Pediatrics*. 2002;110:1103–1109
- Ahluwalia IB, Morrow B, Hsia J, Grummer-Strawn LM. Who is breastfeeding? Recent trends from the Pregnancy Risk Assessment and Monitoring System. *J Pediatr*. 2003;142:486–491
- US Department of Health and Human Services. *Report of the Surgeon General's Workshop on Breastfeeding and Human Lactation*. Rockville, MD: US Department of Health and Human Services, Public Health Service, Health Resources and Services Administration; 1984. DHHS Publication HRS-D-MC 84-82
- US Department of Health and Human Services. *Follow up Report: The Surgeon General's Workshop on Breastfeeding and Human Lactation*. Rockville, MD: US Department of Health and Human Services, Public Health Service, Health Resources and Services Administration; 1984. DHHS Publication HRS-D-MC 85-82
- Spisak S, Gross S. *Second Follow up Report: The Surgeon General's Workshop on Breastfeeding and Human Lactation*. Washington, DC: National Center for Education in Maternal and Child Health; 1991
- US Department of Health and Human Services. *HHS Blueprint for Action on Breastfeeding*. Washington, DC: US Department of Health and Human Services, Office on Women's Health; 2000
- Cadwell K. Reaching the goals of "Healthy People 2000" regarding breastfeeding. *Clin Perinatol*. 1999;26:527–537
- Kyenya-Isabirye M. UNICEF launches the Baby-Friendly Hospital Initiative. *MCN Am J Matern Child Nurs*. 1992;17:177–179
- Lindenberger JH, Bryant CA. Promoting breastfeeding in the WIC program: a social marketing case study. *Am J Health Behav*. 2000;24:53–60
- Hartley BM, O'Connor ME. Evaluation of the "Best Start" breastfeeding education program. *Arch Pediatr Adolesc Med*. 1996;150:868–871
- Bryant CA, Coreil J, D'Angelo SL, Bailey DF, Lazarov M. A strategy for promoting breastfeeding among economically disadvantaged women and adolescents. *NAACOGS Clin Issu Perinat Womens Health Nurs*. 1992;3:723–730
- Wright AL, Bauer M, Naylor A, Sutcliffe E, Clark L. Increasing breastfeeding rates to reduce infant illness at the community level. *Pediatrics*. 1998;101:837–844
- Ahluwalia IB, Tessaro I, Grummer-Strawn LM, MacGowan C, Benton-Davis S. Georgia's breastfeeding promotion program for low-income women. *Pediatrics*. 2000;105(6). Available at: [www.pediatrics.org/cgi/content/full/105/6/e85](http://www.pediatrics.org/cgi/content/full/105/6/e85)
- Sikorski J, Renfrew MJ, Pindorai S, Wade A. Support for breastfeeding mothers: a systematic review. *Paediatr Perinat Epidemiol*. 2003;17:407–417
- Li R, Jewell S, Grummer-Strawn L. Maternal obesity and breast-feeding practices. *Am J Clin Nutr*. 2003;77:931–936
- Donath SM, Amir LH. Does maternal obesity adversely affect breastfeeding initiation and duration? *J Paediatr Child Health*. 2000;36:482–486
- Amir LH, Donath SM. Does maternal smoking have a negative physiological effect on breastfeeding? The epidemiological evidence. *Birth*. 2002;29:112–123
- Leung GM, Ho LM, Lam TH. Maternal, paternal and environmental tobacco smoking and breast feeding. *Paediatr Perinat Epidemiol*. 2002;16:236–245
- Leung GM, Lam TH, Ho LM. Breast-feeding and its relation to smoking and mode of delivery. *Obstet Gynecol*. 2002;99:785–794
- American Academy of Pediatrics, Committee on Drugs. The transfer of drugs and other chemicals into human breast milk. *Pediatrics*. 2001;108:776–789
- Henderson JJ, Evans SF, Straton JA, Priest SR, Hagan R. Impact of postnatal depression on breastfeeding duration. *Birth*. 2003;30:175–183
- Taylor JS, Risica PR, Cabral HJ. Why primiparous mothers do not breastfeed in the United States: a national survey. *Acta Paediatr*. 2003;92:1308–1313
- Vivness CM, Kennedy KI. Maternal employment and breast-feeding: findings from the 1988 National Maternal and Infant Health Survey. *Am J Public Health*. 1997;87:945–950
- Roe B, Whittington LA, Fein SB, Teisl MF. Is there competition between breast-feeding and maternal employment? *Demography*. 1999;36:157–171
- Rowe-Murray HJ, Fisher JR. Baby friendly hospital Practices: cesarean section is a persistent barrier to early initiation of breastfeeding. *Birth*. 2002;29:124–131
- US Department of Health and Human Services. *Healthy People 2000, National Health Promotion and Disease Prevention Objectives*. Washington, DC: US Department of Health and Human Services; 1990. DHHS Publication PHS 91-50213
- Ajzen, I, Fishbein M. *Understanding Attitudes and Predicting Behavior*. Englewood Cliffs, NJ: Prentice-Hall; 1980
- American Academy of Pediatrics, Committee on Practice and Ambulatory Medicine. *Recommendations for Preventive Pediatric Health Care*. Elk Grove Village, IL: American Academy of Pediatrics; 1995:373–374
- Institute of Medicine. *Nutrition During Pregnancy: Weight Gain and Nutrient Supplements*. Report of the Committee on Nutritional Status During Pregnancy and Lactation, Food and Nutrition Board. Washington, DC: National Academy Press; 1990

# Why Do Women Stop Breastfeeding? Findings From the Pregnancy Risk Assessment and Monitoring System

Indu B. Ahluwalia, Brian Morrow and Jason Hsia

*Pediatrics* 2005;116;1408-1412

DOI: 10.1542/peds.2005-0013

<b>Updated Information &amp; Services</b>	including high-resolution figures, can be found at: <a href="http://www.pediatrics.org/cgi/content/full/116/6/1408">http://www.pediatrics.org/cgi/content/full/116/6/1408</a>
<b>References</b>	This article cites 25 articles, 9 of which you can access for free at: <a href="http://www.pediatrics.org/cgi/content/full/116/6/1408#BIBL">http://www.pediatrics.org/cgi/content/full/116/6/1408#BIBL</a>
<b>Citations</b>	This article has been cited by 6 HighWire-hosted articles: <a href="http://www.pediatrics.org/cgi/content/full/116/6/1408#otherarticles">http://www.pediatrics.org/cgi/content/full/116/6/1408#otherarticles</a>
<b>Subspecialty Collections</b>	This article, along with others on similar topics, appears in the following collection(s): <b>Nutrition &amp; Metabolism</b> <a href="http://www.pediatrics.org/cgi/collection/nutrition_and_metabolism">http://www.pediatrics.org/cgi/collection/nutrition_and_metabolism</a>
<b>Permissions &amp; Licensing</b>	Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at: <a href="http://www.pediatrics.org/misc/Permissions.shtml">http://www.pediatrics.org/misc/Permissions.shtml</a>
<b>Reprints</b>	Information about ordering reprints can be found online: <a href="http://www.pediatrics.org/misc/reprints.shtml">http://www.pediatrics.org/misc/reprints.shtml</a>

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™

