Access, Use, and Preferences for Technology-Based Perinatal and Breastfeeding Support Among Childbearing Women

Jill Radtke Demirci, PhD, RN, IBCLC

Susan M. Cohen, PhD, APRN, FAAN

Maris Parker, MSW

Ashleigh Holmes

Debra L. Bogen, MD, FAAP, FABM

ABSTRACT

We surveyed 146 postpartum women who birthed at 34–37 6/7 weeks of gestation and intended to breast-feed about their use of and preferences regarding technology to obtain perinatal and breastfeeding support. Most participants owned smartphones and used technology during pregnancy to track pregnancy data, follow fetal development, address pregnancy concerns, and obtain breastfeeding information. Internet, e-mail, apps, and multiplatform resources were the most popular technologies used and preferred. Demographic differences existed in mobile technology access and preferences for different technologies. In terms of technology-based breastfeeding support, women wanted encouragement, anticipatory guidance, and information about milk production. A nuanced understanding of the technology childbearing women use and desire has the potential to impact clinical care and inform perinatal support interventions.

The Journal of Perinatal Education, 25(1), 29–36, <http://dx.doi.org/10.1891/1058-1243.25.1.29>

Keywords: technology, Internet, breastfeeding, pregnancy, perinatal care

Childbearing women regularly seek pregnancy, birth, and infant care information through technology-based media (Romano, 2007). According to the recent *Listening to Mothers III* survey, almost two-thirds of postpartum mothers within a nationally representative sample of 2,400 women reported signing up for “weekly or so” e-mails about pregnancy and childbirth,

and 82% report using the Internet at least once weekly during pregnancy. A significant proportion of these women also reported the following technology-based sources as “very valuable” for obtaining pregnancy information: pregnancy/birth websites, general medical or health websites, and pregnancy/childbirth apps (Declercq, Sakala, Corry, Applebaum, & Herrlich,

Despite women's increasing dependence on technology to receive perinatal information and support, there are limited data on patterns of use.

2013). Despite higher value rankings attributed to information obtained from obstetric providers and childbirth classes (Declercq et al., 2013), the probability of receiving such support is low. One-on-one time with obstetric providers is reported to be brief in many cases (Demirci et al., 2013; O'Connell, Youcha, & Pellegrini, 2009). Likewise, only 53% of mothers are reported to ever attend a childbirth class, with 34% attending in their most recent pregnancy (Declercq et al., 2013). Despite women's increasing dependence on technology to receive perinatal information and support, there are limited data on patterns of use.

In particular, the type of breastfeeding information pregnant and postpartum women seek through technology is unknown. This is significant because although nearly all women make an infant feeding decision before the end of the first trimester of pregnancy (Earle, 2000; Izatt, 1997; Noble et al., 2003), observational data suggest that breastfeeding is rarely addressed in the context of the prenatal visit (Demirci et al., 2013). Breastfeeding support among pediatric providers is also reported to be poor. A survey of 875 pediatricians in 2004 found that only 58% believed the benefits of breastfeeding outweighed the difficulties, and only slightly more than half regularly observed breastfeeding sessions or counseled mothers on lactation problems—often deferring breastfeeding questions to other health-care professionals (Feldman-Winter, Schanler, O'Connor, & Lawrence, 2008). It is important, therefore, to understand the role of external sources of support, such as technology, in shaping women's ideas and opinions about breastfeeding and other perinatal issues.

METHODS

We surveyed 146 postpartum women about their use of and preferences for technology to obtain information about pregnancy, infant care, and breastfeeding. Participants were at least 18 years old, birthed an infant between 34 and 37 6/7 weeks of gestation, and reported intention to breastfeed for at least 2 months. The survey—part of an ongoing randomized pilot

intervention trial on perceived insufficient milk supply in preterm mothers—was designed to provide pilot data for a technology-based breastfeeding support intervention. The survey was administered orally by study personnel to all women meeting eligibility criteria and signing written informed consent during their postpartum hospitalization (0–3 days postpartum) at a large tertiary care maternity hospital between April and November 2013. The study was approved by the University of Pittsburgh Institutional Review Board.

Survey items included information about women's current access to a smartphone and text message plan; timing and type of technology used to obtain information about pregnancy, infant care, and breastfeeding; preferred technology mediums (text message, e-mail, Internet/Internet link, telephone call, other) and reason(s) for preferences; and breastfeeding information and support desired via technology. The survey was formatted as forced choice, except for several open-ended items related to technology and breastfeeding support preferences ("Describe the technology used during pregnancy to get information about pregnancy, infant care, or breastfeeding"; "For what reason(s) do you prefer this/these particular form(s) of technology over others?"; and "In your opinion, what is the most important kind of breastfeeding information or support to provide to women remotely/through technology during pregnancy and after the baby is born?"). Answers were recorded as closely to participants' own words as possible. If women had difficulty responding to the breastfeeding item, they were prompted with examples including contact information for local lactation consultants, emotional support or "cheerleading," and information about what to expect in terms of milk production and infant behavior.

Quantitative data were analyzed descriptively with Statistical Package for the Social Sciences (SPSS) Version 21 (IBM Corporation, Armonk, NY, 2012). Demographic differences in outcomes of interest were assessed using *t* tests for continuous variables and chi-square tests and Fisher exact tests for categorical variables with and without expected cell counts of at least five, respectively. Open-ended responses were coded for content in Atlas TI by the first author (JRD; e.g., timing and type of breastfeeding information desired, specific technology source and content used in pregnancy, reason[s] for technology preference[s]). Using constant comparison, codes were grouped and categorized (e.g., "colostrum" subsumed under "early breastfeeding/initiation").

The most common technologies used prenatally were apps, Internet search engines, pregnancy/parenting websites and e-mail.

AH coded all responses for reliability with a codebook developed by the first author (JRD). All coding discrepancies were discussed and resolved between the coders.

RESULTS

Sample

Mothers ranged in age from 18 to 44 years ($M = 30$ years, $SD = 5$ years). Most were non-Hispanic White, married, and possessed a bachelor's degree or higher. Most infants were born between 37 and 38 weeks of gestation. Nearly all women reported making their decision to breastfeed while they were still pregnant. Almost half of women had other biological children living with them, and of these, 94% ($n = 65$) had breastfed another child. Of the women who had not previously breastfed ($n = 81$), 27% ($n = 22$) took a breastfeeding class during pregnancy (Table 1).

Access and Information Sought Prenatally

Most women had access to a cellular phone with a data and text plan and used technology to access perinatal information at least a few times per week throughout pregnancy (Table 1). The most common technologies used prenatally were apps, Internet search engines, pregnancy/parenting websites and e-mail. There were no demographic differences in access to technology or type of technology used, except that women with data plans and unlimited texting were slightly younger (30 years vs. 32 years, $p = .04$, and 30 years vs. 34 years, $p = .02$, respectively). Twenty-three mothers used several different technology mediums provided by the same entity (e.g., app and e-mails from Baby Center/My Pregnancy Today). Additional technology sources used included Facebook, text messages, online videos, online courses/classes, electronic medical journals, peer forums, e-books, and podcasts (Table 2).

A subset of the sample volunteered specific topics for which they sought information or support. These were most often related to pregnancy progression and fetal development (e.g., size of fetus week to week, what to expect in pregnancy each month; $n = 19$), general pregnancy issues and concerns (e.g., "symptoms" of pregnancy, "losing the mucus plug," fitness in pregnancy, signs of preterm labor; $n = 24$), and breastfeeding ($n = 11$). Women also commonly used technology to track pregnancy and labor indices (e.g., kick counts, contraction counters, due date calculators, information/health

TABLE 1
Sample Characteristics ($N = 146$)

Demographics	<i>N</i> (%)
Non-Hispanic ethnicity	145 (99)
Race	
White	113 (77)
Black/African American	16 (11)
Asian/Indian	8 (6)
Mixed/biracial	6 (4)
Other	3 (2)
Marital status	
Married	102 (70)
Living together	22 (15)
Never married	17 (12)
Divorced	5 (3)
Education	
Some high school	2 (1)
High school diploma/GED	17 (12)
Some college	19 (13)
Associate's degree	13 (9)
Occupational/vocational program	8 (6)
Bachelor's degree	43 (30)
Postgraduate degree	44 (30)
Other biological children in household	69 (47)
Infant's gestational age (based on reported last menstrual period)	
34–34 6/7 weeks	1 (1)
35–35 6/7 weeks	15 (10)
36–36 6/7 weeks	34 (23)
37–37 6/7 weeks	96 (66)
Breastfeeding	
Previously breastfed another child	65 (45)
During pregnancy made the decision to breastfeed	144 (99)
Took a breastfeeding class during pregnancy	27 (19)
Technology	
Owns a personal cell phone	141 (97)
Owns a "smartphone" (phone with internet capabilities)	127 (87)
Text message plan on cell phone	139 (95)
Unlimited text messaging on cell phone	128 (88)
Used technology (e.g., apps, e-mail, Internet, text messaging) in pregnancy to get information about pregnancy, infant care, or breastfeeding	138 (95)
Trimester of technology use	
First only	0 (0)
Second only	1 (1)
Third only	3 (2)
First and second	1 (1)
Second and third	4 (3)
All	128 (88)
Frequency of technology use	
More than once per day	34 (23)
Once per day	33 (23)
A few times per week	42 (29)
About once per week	20 (14)
Monthly or less	9 (6)

Note. GED = general educational development.

TABLE 2
Technology Used in Pregnancy

Platform	Participants Using: <i>N</i> (% of Those Who Specified Using a Type of Technology; <i>n</i> = 34)	Specific Applications
Apps	85 (63)	Baby Connect, I'm Expecting, Pregnancy Companion, Sprout, Mobile Mom, Medela iBreastfeed, Fit Pregnancy, Baby Bump, ^a BabyCenter/My Pregnancy Today, ^a BabyGaga, ^a The Bump, ^a What to Expect, ^a WebMD/WebMD Baby, ^a Contraction Timer, Kickme-Baby Kicks Counter, commercial companies (e.g., Similac, Enfamil, Gerber)
Internet search engines	72 (54)	"Googling" questions
Websites:		
Pregnancy/parenting websites	49 (37)	Parents.com, Ask Dr. Sears, Just Mommies, KellyMom, Baby Bump, ^a Baby Center/My Pregnancy Today, ^a Baby Gaga, ^a Everyday Family, ^a The Bump, ^a What to Expect, ^a WebMD/WebMD Baby, ^a commercial companies (e.g., Pampers ^a)
Professional organization websites	10 (8)	American Academy of Pediatrics, American Pregnancy Association, Mayo Clinic
E-mail	38 (28)	Informal exchanges between family and friends, automated messages through health-care systems, Baby Center/My Pregnancy Today, ^a The Bump, ^a What to Expect, ^a Everyday Family, ^a commercial formula and diaper companies (e.g., Similac, Enfamil, Pampers ^a)
Facebook pages, groups, and apps	8 (6)	Baby Gaga, ^a health-care organizations
Text messages	8 (6)	Text4baby, informal exchanges between family/friends, message service through Women, Infants, and Children (WIC)
Online videos	7 (5)	YouTube, The Endowment for Human Development, health-care provider portals (content accessed: childbirth, fetal development, breastfeeding)
Online courses/classes	3 (2)	Health-care systems (content accessed: prenatal information)
Online medical journals, evidence-based articles	2 (2)	PubMed, UpToDate
Miscellaneous (peer online forums, e-books, podcasts)	3 (2)	Podcasts: PregTASTIC; specific e-books and peer forums not specified

^aSources administered via several platforms including websites, e-mails, apps, and/or Facebook.

data from prenatal appointments; *n* = 19). Fewer women described using technology to obtain peer support or advice (*n* = 2); information on childbirth, parenting, or infant health and development (*n* = 5); and ideas for baby names (*n* = 1).

Postpartum Women's Preferred Technology Sources

Among participants, the most preferred technology medium to receive reliable information and support about pregnancy, infant care, and breastfeeding was e-mail, followed by Internet links. Apps were the most commonly preferred "other" technology (*n* = 16; Figure 1). E-mail was a preferred technology more often among White compared to African American women (56% vs. 25%, *p* = .02), married

women and those living with a partner compared to single women (57% vs. 32%, *p* = .03), and those with a college degree (69% vs. 31%, *p* < .001). Texting was a preferred technology more often among younger women (*M* = 28 years [preference] vs. 31 years [no text preference], *p* = .03) and those without a college degree (37% vs. 18%, *p* = .01).

Reasons cited for preferences of one technology over another included familiarity, cost, and convenience as well as information reliability, brevity, depth, immediacy, specificity/personalization, readability/presentation, and storage capacity. Participants also noted the balance of useful versus extraneous information (e.g., ads, "spam" e-mail, inundation with too many texts/e-mails). Convenience was viewed by many as a top criterion for

Figure 1. Proportion of postpartum women ($N = 146$) indicating a preference for different technology mediums for reliable information about pregnancy, infant care, and breastfeeding. Women may have chosen more than one technology preference. “Other” category encompassed the following technology-based mediums independently identified by women: apps, podcasts, rich site summary (RSS) feeds, Twitter, Facebook, Internet search engines (e.g., Google).

technology preference (67% of those providing a rationale for preference); the ability to view information from multiple devices (e.g., mobile phone, computer) was valued, as was the ability to access information at a time that fit into the participant’s daily routine and lifestyle (e.g., “when the kids are sleeping,” “while I’m at work,” “while multitasking”).

E-mail and Internet were additionally favored for breadth of information provided and affordability (as opposed to the cost of apps and text message plans). Participants preferred the Internet for quick and accurate pinpointing of desired information, the ability to access multiple “answers” through keyword searches, and the opportunity to view the information source. Whereas some participants thought that texts were intrusive, annoying, or lacking sufficient information, others valued the brevity, instant display of information without password imputation, and the ability to refer back to saved messages.

Participants who preferred apps liked consolidation of information in one place and the personalization of information based on inputted data. Women who favored telephone support cited the opportunity for live interaction with a human, clarification and instantaneous exchange of information, reliability of information, and identification of oneself as an “auditory learner.”

Technology-Based Breastfeeding Support

Women desired emotional, informational, technical, and consultative-type breastfeeding support through technology in the perinatal period. The most commonly identified breastfeeding needs were “cheerleading” or advice for coping with breastfeeding difficulties or disappointments ($n = 36$), expectations or anticipatory guidance related to breastfeeding changes over time ($n = 37$), and information on milk supply and production ($n = 18$; e.g., “how to increase supply,” “what’s normal”; Table 3).

Although not explicitly assessed, some women volunteered a desired timing or format of breastfeeding support. Two women noted that breastfeeding support should be frequent (“constant,” “every single day”). Three thought support would be most helpful upon their return to work, one desired support toward the end of pregnancy, and one wanted support during the postpartum period only. Five women noted a preference for breastfeeding education that was visual (e.g., videos, photos, or pictorials showing “how to breastfeed,” “how to express milk,” “the first 24 hours of breastfeeding”), whereas 12 indicated that breastfeeding support should be presented concisely and selectively (“quick list of problems and help,” “numbers,” “charts,” “dos and don’ts”). Two participants specified that

TABLE 3
Technology-Based Breastfeeding Support Desired by Women (n = 114)

Type of Support	Examples Cited by Participants
Emotional	
Encouragement/cheerleading, reassurance	"Breastfeeding gets better if you hang in there," "Be patient and don't give up," "Breastfeeding doesn't happen smoothly," "Breastfeeding is a learning experience for you and the baby."
Peer camaraderie	Hearing other breastfeeding mothers' stories or testimonials
Relaxation and coping techniques	How to cope with frustrations; handling generational differences in breastfeeding expectations
Informational	
Anticipatory guidance	Changes in milk production over time, expectations for infant breastfeeding behavior at different stages of development, stool patterns of breastfed infants, "When to stop [breastfeeding]"
Contraindications to breastfeeding	Medications, alcohol use
Benefits of breastfeeding	Why breastfeeding is "better"; health benefits for mom and baby
Formula supplementation	Conditions under which formula supplementation is recommended (e.g., "preterm labor?")
Pumping/milk expression and storage	How often to pump, milk expression to maintain supply with return to work
Milk supply and production	"Getting milk supply up," "natural ways to help supply," "what's normal"
Signs infant is "getting enough" and "you're doing it right"	"Cues" for fullness, "numbers" (wet/stool diapers, frequency and length of feedings), "red flags to problems," "how [breastfeeding] should feel"
Initiating breastfeeding	What to expect in the first week (colostrum, milk "coming in"), getting started with positioning and latch
Lifestyle while breastfeeding	Fitness, nutrition
Pain/discomfort	Avoiding and managing nipple pain
Miscellaneous	Kangaroo care, product information (e.g., breast creams), social trends in breastfeeding, infant reflux, managing mastitis
Technical	
"How-to," "hands-on" information, videos, pictures/visuals	Latching, positions/holds, breast pump operation, expressing milk, "trouble-shooting" common breastfeeding problems
Consultative	
Resources for breastfeeding assistance, individualized and interactive help	Developing a "support network," "where to turn to for help," support group locations, information about breastfeeding classes, lactation consultant contact information, "one-on-one" help, mother-to-mother and expert-to-mother support, online resources where you can post questions and receive replies

breastfeeding support should differ based on breastfeeding experience (e.g., "second time around [I just need] refreshers"; "[with] my second baby, when does the milk come in?").

IMPLICATIONS FOR RESEARCH AND PRACTICE

We found that most postpartum women surveyed had access to technology and smartphones, which they used during pregnancy to track pregnancy and labor data, follow pregnancy progression and fetal development, and obtain information about common pregnancy concerns. Breastfeeding was also among the most frequently accessed topics via technology. Similar to findings from a recent national survey (Declercq et al., 2013), websites and apps

were among the most popular technology mediums used and preferred to access this information. Participants in our study also rated Internet search engines and automated e-mail communication from multiplatform perinatal sources (e.g., The Bump, Baby Bump, My Pregnancy Today, What to Expect) as highly used sources of perinatal support.

Although we did not assess women's opinions of perinatal education provided via technology versus their health-care provider, research indicates pregnant women increasingly turn to the Internet for information because they are dissatisfied with the time allotted and extent of information provided by health-care professionals (Lagan, Sinclair, & Kernohan, 2010). In line with this, it is estimated that up to 50%–70% of pregnant women do not

discuss information retrieved on the Internet with health professionals (Kavlak, Atan, Gülec, Oztürk, & Atay, 2012; Larsson, 2009). Yet, there are risks of accessing health information online without input from a trained clinician. A 2006 report from the Pew Internet and American Life Project indicated that 25% of people surveyed in a national sample felt overwhelmed by the amount of health information they found online, 22% were frustrated by a lack of information, 18% were confused, and 10% were frightened (Fox, 2006). A 2012 survey conducted with 135 participants in antenatal care indicated that 90% could not differentiate between not-for-profit and commercially run pregnancy websites (Lima-Pereira, Bermúdez-Tamayo, & Jasienska, 2012), the latter of which may contain inaccurate or biased information. In fact, a recent Pew report suggests that erroneous health information persists on the Internet—with only 41% of individuals having an online “diagnosis” subsequently confirmed by a clinician (Fox & Duggan, 2013).

Published research (Declercq et al., 2013; Lagan et al., 2010; Romano, 2007) and our findings indicate that obstetric providers should consider women’s exposure to technology-based information when delivering perinatal care. An assessment of sources used and the nature of information accessed may help clinicians mitigate any anxiety and information bias and maximize time spent with patients. For example, women may be able to quickly access and share pregnancy tracking data (e.g., kick counts, nutrition) on their mobile devices, making clinicians privy to more expeditious and accurate health histories and providing an opportunity to focus on more complex issues. A working knowledge of the most common technology resources pregnant women use would also allow clinicians to offer input into reliability of available information and elaborate on recommendations that are potentially controversial, confusing, or require an individualistic approach. Proactive referrals to trusted technology sources or those maintained by the clinician’s organization provide a viable alternative for providers unable to keep pace with the multitude of technology-based information available to patients. Given the high use of commercial technologies used in our sample, future research should also evaluate the accuracy of perinatal information provided through these sources.

To our knowledge, no other studies have investigated women’s educational needs related to

Women desired emotional, informational, technical, and consultative-type breastfeeding support through technology in the perinatal period.

breastfeeding that could be delivered via technology. Our results indicate that the most desired types of breastfeeding support were encouragement, expectations about breastfeeding evolution over the postpartum period, signs of adequate milk production and infant nourishment, how-to visual representations of proper latching and positioning, and consultative advice from experts and peers. Further research is needed to understand the optimal timing, frequency, and format of such support—both prenatally and in the postpartum period, to help women achieve their breastfeeding goals.

The implications of our study are limited by a relatively homogenous sample drawn from a single hospital system. Albeit reflective of the region in which the research was conducted and the demographic profile of women who breastfeed at the highest rates (Centers for Disease Control and Prevention, 2013), our findings are not necessarily generalizable to minority, noncollege-educated women. In addition, because survey items were designed specifically to inform a planned breastfeeding intervention, some details about technology use in this population require further exploration. For example, among the different technology sources used, we did not explicitly assess content and functionalities accessed (e.g., message boards, articles), although some women volunteered this information. We also did not ask women to distinguish between desired breastfeeding support prenatally versus postpartum, although we anticipate different learning needs during pregnancy, at the birth juncture, and throughout the postpartum course. In addition, the most commonly identified breastfeeding educational needs (encouragement and anticipatory guidance) were contained in the question prompts. This suggests that early postpartum women may have difficulty anticipating the breastfeeding support they will need with perhaps only a few hours or days of breastfeeding experience. To ascertain breastfeeding education needed over the perinatal course, future research should incorporate more synchronous methods of evaluation, such as ecological momentary assessment.

CONCLUSIONS

The ubiquitous nature of technology use among childbearing women represents an opportunity to deliver support and education to women who may not otherwise receive it in the traditional setting of a physician office. To this end, our work provides an initial blueprint for the timing, format, and content of technology-driven perinatal and breastfeeding support women are most likely to use and want.

ACKNOWLEDGMENTS

This study was funded by the Ruth Perkins Kuehn Research Award, University of Pittsburgh School of Nursing. Jill Demirci was supported through a Ruth L. Kirschstein National Research Service Award Institutional Research Training Grant (T32HP22240 HRSA NRSA for Primary Medical Care). We thank Susan Sereika for her input into the study design and Susan Bare for her assistance with data collection.

REFERENCES

- Centers for Disease Control and Prevention. (2013). *Provisional breastfeeding rates by socio-demographic factors, among children born in 2007*. Retrieved from http://www.cdc.gov/breastfeeding/data/NIS_data/2007/socio-demographic_any.htm
- Declercq, E., Sakala, C., Corry, M., Applebaum, S., & Herrlich, A. (2013). *Listening to Mothers III: Pregnancy and birth*. Retrieved from http://transform.childbirth-connection.org/wp-content/uploads/2013/06/LTM-III_Pregnancy-and-Birth.pdf
- Demirci, J. R., Bogen, D. L., Holland, C., Tarr, J. A., Rubio, D., Li, J., . . . Chang, J. C. (2013). Characteristics of breastfeeding discussions at the initial prenatal visit. *Obstetrics and Gynecology*, 122(6), 1263–1270.
- Earle, S. (2000). Why some women do not breast feed: Bottle feeding and fathers' role. *Midwifery*, 16(4), 323–330.
- Feldman-Winter, L. B., Schanler, R. J., O'Connor, K. G., & Lawrence, R. A. (2008). Pediatricians and the promotion and support of breastfeeding. *Archives of Pediatrics & Adolescent Medicine*, 162(12), 1142–1149.
- Fox, S. (2006). *Online health search 2006*. Washington, DC: Pew Research Center. Retrieved from <http://www.pewinternet.org/2006/10/29/online-health-search-2006/>
- Fox, S., & Duggan, M. (2013). *Health online 2013*. Washington, DC: Pew Research Center. Retrieved <http://www.pewinternet.org/2013/01/15/health-online-2013/>
- Izatt, S. D. (1997). Breastfeeding counseling by health care providers. *Journal of Human Lactation*, 13(2), 109–113.
- Kavlak, O., Atan, S., Gülec, D., Oztürk, R., & Atay, N. (2012). Pregnant women's use of the internet in relation to their pregnancy in Izmir, Turkey. *Informatics for Health & Social Care*, 37(4), 253–263.
- Lagan, B., Sinclair, M., & Kernohan, W. (2010). Internet use in pregnancy informs women's decision making: A web-based survey. *Birth*, 37(2), 106–115.
- Larsson, M. (2009). A descriptive study of the use of the Internet by women seeking pregnancy-related information. *Midwifery*, 25(1), 14–20.
- Lima-Pereira, P., Bermúdez-Tamayo, C., & Jasienska, G. (2012). Use of the Internet as a source of health information amongst participants of antenatal classes. *Journal of Clinical Nursing*, 21(3–4), 322–330.
- Noble, L., Hand, I., Haynes, D., McVeigh, T., Kim, M., & Yoon, J. J. (2003). Factors influencing initiation of breast-feeding among urban women. *American Journal of Perinatology*, 20(8), 477–483.
- O'Connell, V. A., Youcha, S., & Pellegrini, V. (2009). Physician burnout: The effect of time allotted for a patient visit on physician burnout among OB/GYN physicians. *Journal of Medical Practice Management*, 24(5), 300–313.
- Romano, A. M. (2007). A changing landscape: Implications of pregnant women's internet use for childbirth educators. *The Journal of Perinatal Education*, 16(4), 18–24.

JILL RADTKE DEMIRCI is a postdoctoral associate at the University of Pittsburgh School of Medicine, Department of Pediatrics. SUSAN M. COHEN is an associate professor at the University of Pittsburgh School of Nursing, Department of Health Promotion and Development. MARIS PARKER was a research coordinator at the University of Pittsburgh School of Medicine, Department of Pediatrics. ASHLEIGH HOLMES is a nursing student at the University of Pittsburgh. DEBRA L. BOGEN is an associate professor at the University of Pittsburgh School of Medicine, Department of Pediatrics.