



Infant Feeding Decisions—"What's Right for Me and My Baby?"

A Commentary

Madeleine Sigman-Grant, PhD, RD

"How are you going to feed your baby?" Such a seemingly simple question. Yet, invariably, mothers will be besieged by advice as to their infant-feeding choice from well-meaning others. Such advice can be reassuring or discouraging, supportive or conflicting. Each pregnant woman deserves accurate information to form an infant-feeding decision that is *right* for her. That decision (whether to exclusively breastfeed, partially breastfeed, or not to breastfeed at all) will inherently conflict with the opinions of others. Only each mother is able to decide what is *right* for her and her infant, and that decision may need to change over time. This commentary distills the wisdom of decades of professional practice devoted to advising mothers on infant-feeding decisions. Nutr Today. 2019;54(3):101–106

"Do what you feel in your heart to be right—for you'll be criticized anyway. You'll be damned if you do and damned if you don't."—Eleanor Roosevelt

"How are you going to feed your baby?" Such a seemingly simple question. Yet, invariably, mothers will be besieged by advice as to their infant-feeding choice from well-meaning others. Such advice can be reassuring or discouraging, supportive or conflicting. But at some point, every mother must decide how she will feed her newborn and then determine if and when that decision will be continued until the infant is developmentally ready for complementary foods.

This commentary distills the wisdom of decades of professional practice advising mothers on infant-feeding decisions as a maternal and child health and nutrition specialist across the United States. Working with pregnant and lactating women has provided me with the perspective of experience, from which have come the tempering of passion, the capacity for understanding, and

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the awareness that every "opinion" comes from someone's personal perspective. Each pregnant woman deserves accurate information to form an infant-feeding decision that is *right* for her. That decision (whether to exclusively breastfeed, partially breastfeed, or not to breastfeed at all) will inherently conflict with the opinions of others. Only each mother is able to decide what is *right* for her and her infant, and that decision may need to change over time.

I have framed this piece in a question-and-answer format to reflect my perspective of the current situation facing American women. It is written with the hope that whatever infant-feeding decision a mother chooses is respected. It is essential that all who influence a mother's choice enhance their sensitivity—without condemnation, judgment, or criticism of the mother and, equally important, of each other.

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WHAT DOES "BREASTFEEDING" MEAN?

Breastfeeding is comprised 2 components: the milk itself and how the milk is delivered. Human milk is specific for human babies. Delivery can be directly from the breast or pumped and given through a bottle or cup. Confusion can occur in defining if a woman is "breastfeeding" between a mother who exclusively provides her milk (via any delivery method) or who supplements partially with some level of infant formula. Use of donor human milk adds to the complexity. For the purposes of this commentary, *breastfeeding* refers to providing the infant with mother's own milk given to her infant via any means, with or without supplementation of infant formula or complementary foods.

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Currently in the United States, more than 80% of women initiate breastfeeding, but the percentage who continue to breastfeed drops to 57% at 6 months.³ For women where potable water and alternative feeds are not economically available, breast milk remains the clear choice. Less clear are choices facing women in the United States, which is the focus of this commentary.

MY MOTHER FED ME FORMULA AND I AM JUST FINE. ISN'T FORMULA AS GOOD AS BREAST MILK?

The short answer is "no" IF "good" means equal. While infants grow when provided clean and appropriately prepared, commercially produced infant formulas, growth is not the only measure of health and wellness. 4 Neither has there been nor is there a true replacement for human milk. The complexity of nutritional, immunological, and bioactive components within human milk is unique and specific for human infants, while the delivery mechanism provides the mother and infant with an exceptional bonding experience. It is not known how, or even if, lack of bioactive, immune, and yet to be identified components of human milk impacts development and future health of those not fed human milk. What we do know is that the human species has evolved via human milk over thousands of years and that safe, commercially prepared infant formula has only been around for slightly over 100 years.⁵

BUT WHAT ABOUT WHEN A WOMAN CAN'T BREASTFEED?

Inevitably, physiological, social, cultural, and economic challenges will preclude lactation for some mothers, necessitating alternatives to a mother's milk or to the traditional system of delivery. To accommodate these situations, a comparable substitute that comes close to replicating the functions for the components of human milk must be developed. This requires continual research into how these components enhance health.

Historically, if a woman was unable to breastfeed, her infant might be fed by another woman (a friend, family member, or wet nurse). ^{6–8} Even at its height, the use of wet nurses was not without controversy, stimulating continued interest in alternative mammalian milks and delivery methods. During the 19th century, technological advances in agriculture, manufacturing, and processing resulted in the safe (uncontaminated) delivery of cow milk to infants. ⁹ During the 20th century, advances in medicine enhanced our knowledge of growth and metabolism and heightened awareness of the basic nutrient composition of human milk. This allowed for the manipulation of nutrient content of cow milk to meet the growth needs of human infants. As the field of pediatrics in the United States expanded, infant growth was viewed as the ultimate "proof" of adequate infant feeding. ¹⁰

Larger babies (often fed the then-available formulas) were viewed as healthier than smaller, leaner breastfed babies.

Questions regarding the quality of growth (fat free vs fat mass) and rate of that growth or the potential inadequacies in formula content did not arise until near the end of the 20th century. Concerns included the association between infant formula feeding and the risk of childhood obesity, the lack of bioactive substances that prevent disease and enhance health, the observed alterations in the infant gut microbiota, and the role of human milk in brain development, to name a few. ⁴ Currently, the fields of microbiology, immunology, genetics (and epigenetics), neurology, cell biology, and computer technology are combining to further enhance our understanding of human milk components beyond nutrient content in order to create a better alternative for those infants relying on artificial feeds. ¹¹

The infant-feeding decision is not solely about the food choice—it encompasses the entire social, cultural, and economic structure of a mother's life.

IF BREASTFEEDING IS SO NATURAL, WHY DO SO MANY WOMEN HAVE TROUBLE WITH IT?

There is no one simple answer to that question. Physiological (both for the mother and for the infant), psychological, social, emotional, and economic reasons have been identified. 12 Indeed, breastfeeding it is not always easy; nor is it immediately successful without some level of support and intervention. Access to such support, which traditionally was provided by others close to the mother, became less available in the mid to late 20th century, when prevailing medical advice along with economic needs such as the need to work outside the home resulted in more women choosing not to breastfeed. Moreover, when the trend back to breastfeeding began, health professionals themselves lacked knowledge on providing accurate advice. Today, support and intervention are more readily available. Lactation consultants; supportive health professionals along with their organizations, businesses, and government policies; and social media have changed the landscape. 13 However, for many women, the level of immediate and intimate support and intervention is less than ideal. 14 One woman on her own cannot change her environment. Creativity in delivering this vital support is needed for lactation to be successful in those mothers wishing to breastfeed. It should be noted, however, that this support, which oftentimes advocates exclusive breastfeeding, needs

to be tempered against advice that rejects the use of any supplemental feed to prevent dehydration or malnutrition in the infant.¹³

I FEEL GUILTY ABOUT NOT BREASTFEEDING MY BABY BUT...

Feelings of guilt for not breastfeeding often reflect feelings of being an inadequate mother who "failed" her infant or who did not listen to the sage advice of her healthcare professional, family, and friends. 15,16 Shame also can affect those mothers who tried to nurse their infant but experienced situations that forced them to discontinue. Throughout life, each individual faces many dilemmas—having to make a choice using conflicting advice, going against what they want to do for the expediency of the moment, having to place one priority above another. For example, while it is wrong to steal, if a child is hungry and there are no other alternatives, some parents would choose to steal. The situation does not diminish the sense of guilt or shame—but some choices are necessary. Similarly, faced with life's realities (going back to work, insufficient milk supply, unsupportive families, infant or maternal medical issues), women may need to choose not to breastfeed or shorten their intended duration of breastfeeding. Such a choice is not a true moral dilemma (as infants grow and develop when fed infant formula) even if not breastfeeding was the mother's first and only choice. It is to be hoped that by encouraging all those working with pregnant and postpartum women to retain their compassion and empathy as each mother makes her choice, any sense of guilt and shame will be diminished.

WHAT ABOUT CONFLICTING OPINIONS? THERE ARE THOSE WHO ARE HOSTILE TOWARD WOMEN WHO DO NOT BREASTFEED BELIEVING THAT EVERY INFANT DESERVES TO BE BREASTFED AND THEN THERE ARE THOSE WHO ARE ADAMANT THAT BREASTFEEDING CONFINES WOMEN AND THAT INFANT FORMULA IS JUST FINE. WHERE DO YOU STAND?

I stand for providing every infant the opportunity to survive and thrive in a supportive family structure. It is easy for someone to judge the decisions of others—but they are not in that situation. What I don't support is the vehemence of inflammatory rhetoric emanating from both sides toward mothers, toward the medical community, and toward advancement of the science to find better substitutes. What I do not support are the unethical practices producing misleading health claims being delivered by aggressive advertising for commercial products. Nor can I understand the bullying tactics used to persuade others to think or act in certain ways, even as I advocate for breastfeeding.



FIGURE 1. The complex challenges facing women in making an infant feeding.

CAN YOU EXPLAIN MORE ABOUT THE CONFLICTING OPINIONS?

In the United States, pregnant women have access to infant-feeding information (Figure 1). Such information can be based on scientific evidence, on experience, or on opinion—all sources claiming to know what is *right*. Pressure to make the *right* infant-feeding decision depends on the source's perspective. In today's environment, social media flour-ishes with opinions emanating from well-meaning moms to concerned health professionals with opinions implying breast milk is the only acceptable feed, to breastfeeding is easy, to those suggesting that breastfeeding keeps a woman from fulfilling her professional goals. There is an element of truth to each viewpoint. Understanding the motivations behind conflicting views is essential to supporting a woman as she weighs all choices in making her decision.

Breastfeeding advocates are passionate about the need for every baby to receive human milk, basing their advice on the overwhelming evidence supporting the benefits of human milk to the infant and the mother. Since the 1970s, these advocates have employed various strategies for promoting breastfeeding. $^{16-18}$ They have written articles in women's magazines and on social media pages, enacted legislation supporting breastfeeding in public places, and implemented vigorous campaigns and interventions. 13,19 Unfortunately, some strategies used fear, bullying, and manipulation tactics filled with judgment. Furthermore, some advocates appear to be insensitive to, or even ignore, challenges many women face in making and implementing breastfeeding as a choice. 19 For example, promoting exclusive breastfeeding may not be appropriate for the mother working at a fast-food establishment who wants to exclusively breastfeed, but needs to return to the workplace at 4 weeks postpartum. In many workplaces, a woman's desire to exclusively breastfeed clashes with the reality of returning to a working environment that may not be conducive to maintaining a full breast milk supply. She may be unable to pump because of lack of space, unsupportive

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coworkers, or other challenges and thus may need to resort to supplementation of her milk with infant formula. This situation can easily create feelings of despair and regret and erode maternal feelings of adequacy.

In addition to the positive rhetoric, more recently antibreastfeeding advice is being expressed. 20 Some of this advice comes from women (and their healthcare providers) who have experienced extremely difficult (and even devastating) breastfeeding outcomes. Rather than having had their difficulties recognized and immediately and appropriately treated, women with lactational insufficiency or infants with sucking difficulties have unnecessarily suffered. Furthermore, some passionate feminists advise women not to breastfeed, perceiving breastfeeding as an inconvenience or an outright burden. These women correctly note that breastfeeding (as well as other maternal activities) can interfere with careers and chances for professional advancement. Unfortunately, in promoting their cause, they often ignore or minimize the evidence supporting the benefits of breastfeeding. The need for extended maternity leave to establish lactation as well as breaks for expressing their milk during work time can be perceived by coworkers and supervisors as a diminished commitment to the job. Juggling work and family issues is difficult; women facing these challenges benefit from a supportive environment that accommodates their occupational and family requirements.¹⁷

Deceptive marketing from commercial interests suggesting the need for supplementation of breast milk also can erode a mother's confidence, even when supported by her family and friends. Advertising and associated activities, such as provision of free formula, have the potential to be manipulative and coercive. Yet US mothers do need access to information on formula content as well as on delivery systems (eg, pumping and bottle/nipple supplies) that might be necessary if they cannot directly breastfeed so they can determine what will be best for them. Some may need resources to access supplemental formula (such as in food assistance programs) or pumping supplies (through medical insurance).

Both breastfeeding advocates and antagonists come down hard on scientists working to identify what is needed to create an alternative feed that truly reflects human milk. The underlying concern appears to center around potential bias. If the research is funded by the infant formula industry, it is deemed tainted. Ideally, government and/or nonprofit funding would reduce potential conflict of interest, but in reality, those who have an economic stake may be the ones willing to pay the high costs involved. Accepting funds from industry does not automatically contaminate research or practice; however, receipt of funding must be acknowledged by investigators and practitioners.

Misleading claims, intimidation, and overenthusiastic advocates from both sides combine to confuse, shame, and

persuade mothers into decisions that might not be the best for them. No one can or should define another's "best"—it disregards the individual. While entitled to an opinion, expressing that opinion to try to influence another's decision in a manner that is manipulative, coercive, and demeaning is unethical.

WHAT DO YOU SUGGEST AS POTENTIAL SOLUTIONS TO CHANGING THE CLIMATE?

What if all involved focused on the end result: "a surviving, thriving infant within a supportive family" rather than being entrenched into positions that are not reflective of acceptance, compassion, and support? Given that women face their own particular challenges and must make decisions that reflect their personal lives, shouldn't they be provided with community support for whatever infant decision they make? Given that there will always be babies who are not fed their mothers' milk (for any reason), doesn't there need to be an alternative that best emulates the composition and function of human milk? Given that current alternatives, while resulting in the survival of several generations, do not reflect the scope of bioactive components contained in human milk that have sustained the species over thousands of years, shouldn't newborns be given the opportunity to receive human milk or a true equivalent?

Any advice given to pregnant women would be more helpful if framed from a focus on a surviving, thriving infant within a supportive family.

What is needed is a concerted, unified effort for all involved to refocus on what is best for each infant given the individual circumstances within which it lives. This would require that breastfeeding advocates temper their mantra that "every baby deserves to be breastfed" to "let's provide every baby the opportunity to thrive and survive in a supportive family structure." It also would require breastfeeding antagonists to accept the overwhelming scientific evidence of the immediate and long-term benefits of breastfeeding. Hence, the infant-feeding decision is not solely about the food choice—it encompasses the entire social, cultural, and economic structure of a mother's life.

Here are some suggestions that will help:

Asking every woman "What do you need to make your infant-feeding decision right for you?" rather than "How are you going to feed your baby?" could uncover unknown personal barriers for which she might need help in overcoming. Such an open-ended question could stimulate dialogues with family, friends, and coworkers and pave a path that complements her life.²¹

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- Following careful guidance on sanitation, greater use of "wet nurses" and human milk banks could extend the benefits of human milk to more infants.²² Making human milk safe and affordable to infants from sources other than their own mother would allow a woman to choose human milk rather than formula. Safe informal or formal breast milk sharing could enable babies to have access to human milk while allowing a woman who chooses not to breastfeed the opportunity to do so without guilt or shame. Moreover, this would allow working women to continue their economic and professional pursuits.
- Scientists must continue to work on improving existing formulas
 to replicate infant growth and infant health outcomes²³ within a
 climate that ensures their work is not used solely for commercial
 purposes to undermine breastfeeding. Establishment of clear
 contractual agreements between scientists, their institutions, and
 commercial interests could be made to ensure improvement to
 infant formulas is publicly shared and does not become proprietary. When scientists from industry publish their findings,
 allowing access to their research database so others could validate the published findings would be a first step. Open access
 might reduce competition but would result in healthier infants.
- Similarly, scientists must persist in designing more effective and efficient extraction and delivery methods so that women can provide expressed breast milk. While some believe this goes against the World Health Organization Code for Marketing of Infant Formulas, creating new devices should be seen as being supportive of, not undermining, breastfeeding.²⁴
- Organizational policies supporting breastfeeding women in the workplace must be implemented. Such policies could include paid maternity leaves, extended leave time until breastfeeding is fully established, accommodations at work sites and schools for the mother-infant dyad (where appropriate), and on-site childcare facilities.
- Cessation of the animosity among those working with pregnant and breastfeeding women begins with recognizing the legitimacy of the perspectives from each side. Joining together to focus efforts on individual solutions to infant-feeding decisions would be preferable to continuing with entrenched opinions. Building on the passion and well-meaning actions from all sources, focusing that power on building a compassionate, respectful, and safe structure that supports each woman and her infant-feeding decision is necessary for infants to thrive.
- Compassion along with "advice" is what mothers need to make their infant feeding choice. There is not one right choice for all women. A woman needs to make her decision based on her own beliefs. She must balance her own and her infant's health status, the needs of her immediate family, and the realities of her environment as she considers input from her healthcare

providers, her friends, her relatives, her workplace, and her community. Each of us should display compassion and empathy to ensure maternal and family well-being.

REFERENCES

- Geraghty SR, Rasmussen KM. Redefining "breastfeeding" initiation and duration in the age of breastmilk pumping. *Breastfeed Med*. 2010;5(3):135–137.
- 2. Rasmussen KM, Felice JP, O'Sullivan EJ, Garner CD, Geraghty SR. The meaning of "breastfeeding" is changing and so must our language about it. *Breastfeed Med.* 2017;12(9):510–514.
- Centers for Disease Control. Breastfeeding Report Card United States, 2018. Atlanta; 2018. https://www.cdc.gov/breastfeeding/ data/reportcard.htm
- 4. Section on Breastfeeding. Breastfeeding and the use of human milk. *Pediatrics*. 2012;129(3):e827–e841.
- Bryder L. From breast to bottle: a history of modern infant feeding. *Endeavour*. 2009;33(2):54–59.
- Dowling DA. Lessons from the past: a brief history of the influence of social, economic, and scientific factors on infant feeding. *Newborn Infant Nurs Rev.* 2005;5(1):2–9.
- Stevens EE, Patrick TE, Pickler R. A history of infant feeding. J Perinat Educ. 2009;18(2):32–39.
- Moro GE. History of milk banking: from origin to present time. Breastfeed Med. 2018;13(S1):S16–S17.
- Obladen M. Technical inventions that enabled artificial infant feeding. Neonatology. 2014;106:62–68.
- 10. Weaver L. A short history of infant feeding and growth. *Early Hum Dev.* 2012;88:S57–S59.
- Hernell O. Human milk vs. cow's milk and the evolution of infant formulas. Nestle Nutr Workshop Ser Pediatr Program. 2011; 67:17–28.
- 12. Head E. Understanding mothers' infant feeding decisions and practices. *Soc Sci.* 2017;6(2):1–11.
- Koerber A. Breast or Bottle?: Contemporary Controversies in Infant-Feeding Policy and Practice. Columbia, SC: University of South Carolina Press; 2013.
- McInnes RJ, Hoddinott P, Britten J, Darwent K, Craig LC. Significant others, situations and infant feeding behaviour change processes: a serial qualitative interview study. BMC Pregnancy Childbirth. 2013;13:114.
- Thomson G, Ebisch-Burton K. Shame if you do—shame if you don't: women's experiences of infant feeding. *Matern Child Nutr.* 2015;11(1):33–46.
- Hausman BL. Things (Not) to do with breasts in public: maternal embodiment and the biocultural politics of infant feeding. *New Lit Hist.* 2007;38(3):479–504.
- 17. Htun M. Critical dialogue. Perspect Polit. 2017;15(2):584–586.
- Taylor E, Wallace L. Risky business: breastfeeding promotion policy and the problem of risk language. J Women Polit Policy. 2017; 38(4):547–563.
- Foss KA. Perpetuating "scientific motherhood": infant feeding discourse in Parents Magazine, 1930-2007. Women Health. 2010; 50(3):297–311.
- Caron C. Breastfeeding or formula? For Americans, it's complicated. New York Times. https://www.nytimes.com/2018/07/14/health/ trump-breastfeeding-history-nyt.html. Published July 14, 2018.
- 21. Amir LH. Social theory and infant feeding. *Int Breastfeed J.* 2011;6(1).
- Sriraman NK, Evans AE, Lawrence R, Noble L, Academy of Breastfeeding Medicine's Board of Directors. Academy of Breastfeeding Medicine's 2017 position statement on informal breast milk sharing for the term healthy infant. *Breastfeed Med*. 2018;13(1):2–4.
- Koletzko B, Baker S, Cleghorn G, et al. Global standard for the composition of infant formula: recommendations of an ESPGHAN coordinated international expert group. *J Pediatr Gastroenterol Nutr.* 2005;41(5):584–599.
- Walker M. On the trail of code compliancy. https://kellymom.com/bf/ advocacy/trail-of-code-compliancy/. Accessed September 14, 2018.

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