

Early childhood is a critical time for the development of healthy food preferences and eating habits that carry into adulthood. In this report, we examine the marketing of baby and toddler food and drinks to parents and whether this marketing supports health professionals and the public health community in their efforts to encourage parents to feed their children a healthful diet.

Birth to 2 years, is a critical period for establishing lifelong and healthy dietary preferences and preventing childhood obesity.¹ The World Health Organization (WHO) recommends that newborns be fed breastmilk exclusively for the first six months.² The American Academy of Pediatrics (AAP) recommends exclusive breastfeeding until around 6 months, but also advises that babies may be ready for some solid food (e.g., iron-fortified infant cereal) by 4 to 6 months.³ Once introduced to solid foods, young children's diets should include varied and positive exposures to the tastes and textures of fruits and vegetables.^{4,5} In addition, consumption of high amounts of added sugar, salt, and fat is discouraged in infants and young children.^{6,7} Following these recommendations encourages healthy dietary preferences later in life, supports healthy growth, and helps to prevent obesity and other diet-related diseases in children.^{8,9}

However, research on the diets of babies and toddlers (up to age 3) found that three out of five infants and one in five toddlers do not consume any vegetables in a given day.^{10,11} Furthermore, young children regularly consume foods high in added sugar, salt, and fat, including fried foods, sweet and salty snacks, and sugary drinks. In addition, the prevalence of children 2 to 5 years old with obesity in the United States has risen from 5% in 1970 to 9.4% in 2013-2014.¹² While obesity rates are beginning to decline in this age group, an estimated 8% of U.S. children under the age of 2 are predisposed to have obesity.¹³ These trends disproportionately affect children of color. Hispanic 2- to 5-year-olds have rates of obesity five times higher than their non-Hispanic white peers, and black children have rates three times higher than white children.¹⁴ Poor nutritional quality during the first years of life has also been linked to the development of hypertension, Type 2 diabetes, and other diet-related diseases later in life.¹⁵ In addition, young children with obesity are significantly more likely to have obesity as adults.¹⁶

Therefore, it is critical that the information parents receive about feeding their children, including the marketing of food and drink products intended for babies and young children, should reflect advice from health professionals about helping children grow up healthy. In this report, we analyze the nutritional quality and other characteristics of food and drink products marketed to parents for their babies and toddlers (up to age 3). In addition, we examine the messages used to promote these products, and evaluate how well they correspond to expert advice about feeding young children.

Baby and toddler food and drink marketing in the United States

Sales of baby and toddler food and drinks in the United States reached an estimated \$6.5 billion in 2013.¹⁷ Seventy-one percent of these sales went to formula products, which include infant formula and toddler milk (manufacturers refer to both product categories as "formula"). Another 26% of sales were for baby food and snacks (including products marketed for toddlers 1 to 3 years old). The remaining 3% of baby food sales were for juice and electrolyte products for children under age 3. Three companies dominate the baby food market. In 2014, Nestle S.A.'s Gerber brand captured 34% of the market, followed by Abbott (maker of Similac and Pediasure) at 28%, and Mead Johnson Nutrition (maker of Enfamil and Enfagrow) at 25%. Private label brands and brands from other food and beverage companies comprised just 13% of total sales.

However, these companies face challenges to continuing to grow their business. First, there is a limited number of children under age 3 to consume their products. Second, the percentage of mothers in the United States choosing to breastfeed their newborn babies is increasing, from 71% in 2000 to 79% in 2011.¹⁸ In response, one market research company recommends marketing strategies such as developing formula that more closely mimics breastmilk, persuading parents to serve commercial baby food instead of "adult" food by highlighting the concentration of nutrients in their products, and providing on-the-go products that make feeding babies more convenient.¹⁹ Other recommended strategies include offering money-saving coupons (noting parents' concerns about the high cost of infant formula especially) and expanding higher priced organic products. Through these types of marketing strategies, sales of formula are projected to grow by 35% from 2013 to 2019, while sales of baby food and snacks are projected to grow by 347%. These rates far surpass the 6.7% projected annual growth in the number of U.S. children under age 3.²⁰

Concerns about the role of marketing

This report is not the first to examine the potential influence of marketing on what and how parents feed their young children. Previous research has examined a number of issues, including the nutritional profile of baby and toddler food and drinks, as well as marketing messages that may misinform parents about optimal practices when feeding babies and young children.

For example, various studies have documented the poor nutritional quality of some baby and toddler foods. An extensive analysis of 1,047 products sold in the United States (using a 2012 nutrient database) found that 72% of toddler dinners were high in sodium, and that the concentration of sodium in infant and toddler snacks was comparable to that of potato chips.²¹ This study also found that more than one-half of infant ready-to-serve mixed grain and fruit products contained at least one added sugar, with more than 35% of their calories

derived from total sugar. Another nutritional analysis of 240 baby and toddler foods sold in the United States found that 58% had high levels of sodium and/or a high proportion of calories from sugar. Almost one-half of the products examined derived 20% or more of their calories from sugar.²² As in the first study, toddler meals contained the highest sodium content.

Marketing messages that may misinform parents

Researchers and advocates have also examined issues regarding marketing messages for baby and toddler food and drinks that may misinform parents about best feeding practices. Potentially misleading messages include those that serve to discourage breastfeeding, promote toddler milk (also known as follow-up or toddler formula), and lead parents to infer that commercial infant formula and baby food products have benefits over breastmilk and foods that parents prepare themselves.

Discouraging breastfeeding. Two studies found that mothers exposed to infant formula marketing, such as free formula samples upon hospital discharge after birth, were less likely to initiate breastfeeding or more likely to breastfeed for a shorter period of time than mothers not exposed.^{23,24} Another study assessed the use of the words “breastmilk,” “human milk,” and “breastfeeding” in 42 ads for infant formula. Researchers found that 89% presented breastmilk and infant formula in the same sentence. The authors concluded that this practice would confuse parents about the similarities and differences between formula and breastmilk.²⁵ A recent analysis of social media posts from infant formula brands found that posts frequently focused on the nutrients in formula, positioned formula as a solution for combating colic, and explicitly compared infant formula with breastmilk.²⁶ In addition, print media generally tends to portray breastfeeding as less convenient, while formula feeding is not problematic.²⁷ Furthermore, marketing that promotes some baby food products may discourage parents from following recommendations to wait until 6 months to introduce solid foods. For example, a recent content analysis of 400 ads for infant and toddler foods found that 43% of the products were intended for babies at 4 months old.²⁸

Confusion about toddler milk. There is evidence that marketing of toddler milk products intended for children older than 12 months may mislead and confuse parents about the differences between toddler milk and infant formula. One study found that companies market infant formula (i.e., for babies younger than 12 months) and toddler milk as part of the same line of products, with similar labels, colors, and logos.²⁹ Companies also present toddler milk line extensions (i.e., use of an already existing brand name for a new product in the same product category) in larger text than the text that identifies the correct product category (i.e., infant formula, toddler milk). This marketing practice may encourage consumers to transfer what they already know about an

existing product (i.e., infant formula) to the new product line extension (i.e., toddler milk). Another study demonstrated that mothers had difficulty differentiating between infant formula, supplementary formula (i.e., formula designed for ages 6 months and up to complement weaning), and toddler milk, which are collectively referred to as “formula” in advertisements.³⁰ Similarly, in focus groups with mothers, 12 of the 15 participants used the terms “formula,” “infant formula,” or “baby formula” to describe toddler milk products.³¹ Notably, the AAP does not recommend serving “toddler formula” to young children, citing the additional cost and no proven advantages over whole milk for 1- to 2-year-olds.³²

Inferences about product benefits. Research has shown that baby and toddler food and drink advertisements may lead parents to infer that these products will benefit their young children compared with breastfeeding or non-commercial foods. In an analysis of advertisements for formula and complementary food products, almost 99% used rational appeals (e.g., claims about nutrition and child health benefits), while 20 to 50% also used emotional appeals (e.g., images of smiling infants and parental love).³³ In the analysis of formula ads cited earlier, more than one-half included at least one health statement, averaging 1.6 such statements per ad.³⁴ Common statements included the products’ ability to aid in brain, eye or vision, and immune system development, which was supported by the addition of nutrients found in breastmilk, such as DHA, as well as probiotics and/or prebiotics. Only seven of the 42 ads examined referenced a supporting clinical study. In focus groups, usage of scientific and technical language increased formula brands’ legitimacy and was especially persuasive for mothers in choosing a particular brand of formula.³⁵

In a comprehensive review of the research on ingredients in infant formula, the Institute of Medicine concluded that the addition of nutrients found in breastmilk (e.g., DHA, ARA) to infant formula are not essential and may even be detrimental if the proportion versus other nutrients is inadequate.³⁶ Furthermore, researchers cite a lack of evidence to support benefits to babies from minor changes in protein content, lactose reduction, soy or hydrolyzed proteins, probiotics, or prebiotics of infant formula, such as reduced fussiness or crying.³⁷ A recent commentary in the *Journal of Pediatrics* discussed parents’ misperceptions that formulas are extensively tested before being marketed to consumers, leading consumers to believe that their advertised health benefits have been proven.³⁸ However, the scientific evidence does not support the advertised properties of some specialty formulas, including newborn formulas, breastfeeding supplements, low-lactose and prebiotic/probiotic formulations, and “gentle” or “sensitive” varieties that imply benefits for babies with colic.

Some misleading statements used in advertising for foods intended for young children have also led to consumer protection actions. In 2013, the New York State Office of the Attorney General reached a settlement with Abbott,

the makers of PediaSure Sidekicks nutritional supplement, about a misleading claim in its advertising.³⁹ Abbott agreed to discontinue its “You are what you eat” advertising, which conveyed the impression that consuming the product makes children more energetic and active. In 2015, the Center for Science in the Public Interest announced agreements with Plum Organics and Gerber to discontinue their misleading practice of using product names that do not accurately reflect the products’ ingredients, such as Kale, Apple, & Greek Yogurt in which kale is the fourth ingredient (after apple puree, water, and pasteurized yogurt).⁴⁰

Guidance on marketing of baby food and drinks

In 1981, the WHO established the International Code of Marketing for Breast-Milk Substitutes (ICMBS) to help address a worldwide decline in breastfeeding and “aggressive and inappropriate” marketing of breastmilk substitutes, including food products that compete with breastfeeding.⁴¹ The Code recommends that national governments prohibit marketing practices that serve to discourage breastfeeding (see **Table 1**). To date, 39 countries have passed legislation incorporating

most of the key provisions, and an estimated 135 countries have adopted some key provisions.⁴² However, the United States has not enacted any of these recommendations. In May 2016, the WHO ratified additional guidance that specifically addresses new forms of marketing for infant formula, as well as marketing of toddler milk and food products for infants and toddlers.⁴³

In the United States, the government does not regulate the marketing of baby food and drink products and, as noted, has not adopted any of the WHO ICMBS provisions. In recognition that infant formula requires more regulation than other foods, the U.S. Food & Drug Administration (FDA) does require that ingredients in infant formula be recognized as safe for infant consumption.⁴⁶ The FDA also requires formula to contain minimum amounts of certain nutrients per 100 calories, with maximum levels when appropriate.⁴⁷ However, the FDA does not review the scientific evidence to support manufacturer reformulations of the ingredients in their infant formula, although as noted earlier parents assume that these claims have been tested and proven.⁴⁸ As with all food products, the FDA also regulates infant formula labeling, including claims.⁴⁹ In response to concerns about structure/function claims (i.e., claims that a product ingredient benefits the normal

Table 1. Key provisions of WHO guidance on marketing infant formula and baby food

WHO International Code of Marketing for Breast-Milk Substitutes (ICMBS) (1981)⁴⁴
<ul style="list-style-type: none"> ■ Informational and educational materials aimed at educating mothers on infant feeding should state the superiority of breastfeeding, the difficulty of reversing the decision not to breastfeed, and recommendations on the proper use of infant formula.
<ul style="list-style-type: none"> ■ Labels of formula products should provide only the necessary information and should not discourage breastfeeding.
<ul style="list-style-type: none"> ■ Neither the container nor the label should contain pictures of infants or phrases that idealize the usage of infant formula.
<ul style="list-style-type: none"> ■ The messages on product labels should be easily readable and understandable to the person acquiring it.
<ul style="list-style-type: none"> ■ There should be no advertisement or promotion to the general public of products within the scope of the code.
<ul style="list-style-type: none"> ■ Manufacturers and distributors should not provide directly or indirectly sample products to pregnant women or members of their families.
WHO Guidance on Ending the Inappropriate Promotion of Foods for Infants and Young Children (2016)⁴⁵
<ul style="list-style-type: none"> ■ Products that function as breast-milk substitutes should not be promoted. A breast-milk substitute should be understood to include any milks (or products that could be used to replace milk, such as fortified soy milk), that are specifically marketed for feeding infants and young children up to the age of 3 years (including follow-up formula and growing-up milk).
<ul style="list-style-type: none"> ■ Messages should always include a statement on the importance of continued breastfeeding for up to two years or beyond and the importance of not introducing complementary feeding before 6 months of age.
<ul style="list-style-type: none"> ■ Messages should not include any image, text or other representation that might suggest use for infants under the age of 6 months (including references to milestones and stages).
<ul style="list-style-type: none"> ■ The packaging design, labelling, and materials used for the promotion of complementary foods must be different from those used for breast-milk substitutes so that they cannot be used in a way that also promotes breast-milk substitutes (for example, different color schemes, designs, names, slogans, and mascots other than the company name and logo should not be used).
<ul style="list-style-type: none"> ■ Companies that market breast-milk substitutes should refrain from engaging in the direct or indirect promotion of their other food products for infants and young children by establishing relationships with parents and other caregivers (for example through baby clubs, social media groups, childcare classes and contests).

structure or function of the human body, such as crying, mental performance, or eye health) on infant formula labels, in September 2016 the FDA published a draft recommendation that would require manufacturers to substantiate these claims with scientific evidence.⁵⁰ Notably, the FDA does not have this requirement for food products intended for older children or adults.

Manufacturers of infant formula and toddler milk (all are considered to be breastmilk substitutes by WHO) have made different levels of commitment to the WHO ICMBIS and its recent guidance on ending the inappropriate promotion of foods for infants and young children. Nestle pledges to adhere to the WHO Code wherever it has been implemented by national governments.^{51,52} Additionally, Nestle has its own policy that applies to countries with less strict or no regulations. Under this policy, Nestle infant product labels must state that breastmilk is best for babies, and the company says it will not promote complementary foods for infants younger than six months. Abbott and Mead Johnson Nutrition belong to the International Association of Infant Food Manufacturers (IFM), a non-profit, non-governmental organization representing global manufacturers of products for infants and children.⁵³ IFM members pledge to adhere to the WHO recommendation to promote exclusive breastfeeding during the first six months of life. Specifically, IFM members pledge that they will not, a) make claims or suggest in marketing, informational, and educational materials or elsewhere that covered products are equivalent or superior to breastmilk; b) present covered products in a way that discourages caregivers from feeding breastmilk to their infants; or c) market complementary foods as breastmilk substitutes, and, unless applicable law prescribes otherwise, market complementary foods for infants up to six months of age. Notably, the IFM does not support the new WHO Guidance on inappropriate promotion of foods for infants or young children.⁵⁴

Infant formula manufacturers also participate in industry self-regulation of national advertising through the Better Business Bureau's National Advertising Division (NAD). Since 2000, infant formula manufacturers have filed 17 complaints against competitors' "inaccurate and deceptive" advertising.⁵⁵ Many of these disputes involved comparing infant formula to breastmilk, and analysis of NAD decisions reveals that standards for supporting these claims has weakened considerably over time.

This report

The purpose of this report is to highlight best practices and identify opportunities for companies to improve their products and marketing practices in ways that help parents raise healthy

children. We quantify the nutrition content and marketing of baby and toddler food and drink products (referred to collectively as baby food). We utilize the definition of baby food from the World Health Organization, which refers to both foods and beverages "that are marketed as being suitable for infants and young children up to 3 years."⁵⁶ We examine two categories of food products (baby food and toddler food, including snacks), and three categories of drink products (infant formula, toddler milk, and nutritional supplement). We define toddler food and drinks as products marketed for consumption of children between 12 months and 3 years.

This report documents differences by baby and toddler food and drink category, company, and brand, including changes in the past five years when available. These analyses include:

- Nutrition content and nutritional quality of baby and toddler food and drink products;
- Marketing messages on product packages and other packaging issues;
- Advertising spending in all media, TV advertising exposure (primarily viewed by women), and messages and other content of magazine and TV advertisements;
- Marketing in digital media, including visits to company websites, display advertising on third-party websites, and marketing in social media on social media platforms, YouTube, and "mom blogs;" and
- Targeted marketing of baby and toddler food and drinks to Hispanic and black parents.

The nutrition and packaging analyses examine baby and toddler food and drink products offered by 13 brands from six companies with \$100,000 or more in advertising spending in 2015. All marketing analyses examine these same brands, as well as additional brands with notable advertising prior to 2015. Product nutrition information was obtained in June 2016 through company websites or by contacting company representatives. Syndicated market research data was obtained from Nielsen for 2011 through 2015 and from comScore for 2015. Researchers collected additional data on brand marketing practices from company websites, social media sites, packaging of products in the supermarket, and through content analyses of advertisements.

The findings in this report evaluate how companies' marketing of baby and toddler food and drinks reinforces or contradicts expert advice on optimal feeding practices to promote young children's long-term health. We highlight positive findings and document products and messages that may not communicate best practices to parents.