

Birth to age 2 is a critical period for establishing lifelong and healthy dietary preferences and eating habits and preventing childhood obesity. The information that parents receive about feeding their young children, including from marketing, should consistently correspond with advice from health professionals about practices that help children grow up at a healthy weight. However, baby and toddler food and drink products and the marketing messages used to promote them do not always support experts' recommendations for feeding babies and toddlers.

The World Health Organization (WHO), American Academy of Pediatrics (AAP), and other experts agree that breastmilk is the best choice for infants under 6 months old, and optimally breastfeeding should continue until 12 months and beyond.<sup>1,2</sup> By around 6 months (between 4 and 6 months if the baby is developmentally ready), infants should be introduced to solid food, progressing from pureed or mashed foods to chopped foods and harder finger foods by 12 months.<sup>3</sup> Toddlers' diets (1-2 years old) should support development of gross and fine motor skills and learn to enjoy the family diet, including varied and positive exposures to the taste, flavors and textures of fruits, vegetables, and other table food.<sup>4,5</sup> Children under age 2 should not consume added sugar,<sup>6</sup> and saturated fat and sodium should also be limited.<sup>7</sup>

However, previous research has documented marketing practices that do not conform with these recommendations. Infant formula manufacturers have pledged to promote exclusive breastfeeding for infants under 6 months and to refrain from marketing that implies that infant formula is a better choice than breastmilk,<sup>8,9</sup> but research has identified numerous marketing practices that could mislead parents to believe that formula products have additional benefits over breastmilk.<sup>10-13</sup> Research on the diets of babies and toddlers has also shown that most young children do not consume enough fruits and vegetables, and many regularly consume foods high in added sugar, sodium, and salt.<sup>14,15</sup> Furthermore, research has documented high levels of added sugar and sodium in some baby food products,<sup>16,17</sup> as well as marketing messages that imply these products may benefit children's nutrition and health.<sup>18</sup> These findings present additional concerns about potential effects of marketing on the development of healthy dietary preferences and eating habits among the youngest children.

Notably, the United States is one of a small number of countries that has not enacted any provisions of the WHO's International Code of Marketing for Breast-Milk Substitutes (ICMBS) to address aggressive marketing of infant formula and complementary foods (established in 1981).<sup>19</sup> In response to concerns about recent developments in marketing of these

products, as well as marketing of toddler food products and toddler milk (also known as toddler or follow-up formula), the WHO ratified additional guidance in 2016.<sup>20</sup>

In this report, we examine the nutritional quality and other characteristics of food and drink products marketed to parents for their babies and toddlers (up to age 3), as well as the messages used to promote these products, and evaluate how well they correspond to expert advice about feeding young children.

## Scope and methods

We used a variety of data sources and methods to provide a comprehensive analysis of food and drink products marketed for babies and toddlers in the United States. Through publicly available data, we document and evaluate the nutrient content of baby and toddler food, infant formula, toddler milk, and nutritional supplements for children under age 3 and the marketing practices used to promote these products. We focus on data for marketing in 2015 and nutrition content and product packaging in April to June 2016. Whenever possible, we also document changes in advertising over the past five years. We analyze brands offered by companies spending \$100,000 or more in total advertising for the categories examined.

We report the following:

- Nutritional quality and nutrient content of baby and toddler food, infant formula, toddler milk, and nutritional supplements;
- Nutrition-related, child development, and other marketing messages on product packaging;
- Special issues in product packaging, including type of packaging (pouches vs. other), the match between product names and their main ingredients, and differentiating infant formula and toddler milk offered by the same brands;
- Advertising spending in all measured media, using Nielsen syndicated data;
- Exposure to TV advertising by women (the primary target market for these products), using syndicated data from Nielsen;
- Content of the messages used in TV, online video, and magazine advertisements;
- Adult visitors to company websites and advertising viewed on third-party websites, using syndicated data from comScore;
- Extent and common techniques used to encourage viral marketing through social media platforms and mom blogs; and
- Advertising targeted to Hispanic and black parents on TV and the internet, including advertising spending and exposure on Spanish-language and black-targeted TV,

using syndicated data from Nielsen and comScore, and content of Spanish-language TV and magazine advertisements.

We did not have access to food industry proprietary documents, including privately commissioned market research, media, and marketing plans or other strategic documents. Therefore, we do not attempt to interpret baby food companies' goals or objectives for their marketing practices. Rather, we provide transparent documentation of the range of marketing practices that encourage parents to feed these products to their young children.

## Results

In the context of the entire food industry, the market for baby and toddler food and drink products is relatively small: \$6.5 billion in sales annually.<sup>21</sup> By comparison, the market for food and beverages aimed at children 2 to 14 years old has been estimated at \$23 billion, approximately 4% of the total U.S. food and beverage market.<sup>22</sup> Nonetheless, the marketing of products intended for babies and toddlers has the potential to impact the diets of very young children with lasting consequences.

## Companies and brands

In 2015, advertising spending for baby and toddler food, infant formula, toddler milk, and one nutritional supplement brand aimed at young children totaled \$77 million in all media, primarily TV and magazines. Just eight brands from three companies were responsible for 99% of advertising spending and all TV advertising exposure for their respective categories in 2015.

- Nestle brands, Gerber and Gerber Graduates, dominated the baby and toddler food categories, with more than 95% of total advertising spending in these categories.
- Gerber Good Start, another Nestle brand, was responsible for almost 60% of infant formula advertising spending. Enfamil from Mead Johnson Nutrition and Similac from Abbott also advertised their infant formula brands, primarily in magazines, digital media, and coupons.
- Enfagrow from Mead Johnson was the only toddler milk advertised in English, while Nido from Nestle only advertised in Spanish-language media.
- Pediasure from Abbott was the only nutritional supplement for young children with advertising in 2015.

Four additional baby and toddler food brands spent \$100,000 or more in advertising in 2015 and are included in our analysis: Plum Organics (Campbell Soup Company), Beech-Nut (Hero A.G.), and Happy Baby and Happy Tot (Nurture Inc.).

## Baby and toddler food nutrition

To assess nutritional quality, we used the Nutrient Profile Index (NPI) score, which measures the overall nutritional composition of the food based on total calories and proportion of nutrients to encourage and limit. A score of 64 or higher identifies a nutritious food (the cut-off for foods that can be advertised to children in the United Kingdom).<sup>23</sup>

- An impressive 100% of all fruit, vegetable, and meal products offered by all brands in our analysis qualified as nutritious, and most had very high NPI scores of 76 or more.
- On the other hand, just four of the 80 baby and toddler snacks analyzed, such as cookies, cereal bars, puffs, and fruit snacks, had a nutritious NPI score of 68 or higher. Furthermore, one-half of baby snacks and 83% of toddler snacks contained added sweeteners.
- With a median NPI score of 56, baby and toddler snacks were similar in nutritional quality to snacks marketed for older children and adults, such as Kashi cereal bars, Cheetos reduced fat puffs, and animal crackers. In contrast, regular Cheerios, a traditional finger food for babies, has an NPI score of 70 and would be a more nutritious choice.

However, there was wide variation in the nutritional quality of products offered by different brands in our analysis.

- Notably, Beech-Nut and Gerber did not offer baby food snacks, and all their baby food products had nutritious NPI scores.
- In contrast, almost one-third of Happy Baby products and 15% of Plum Organics baby products were snack foods that did not meet minimum nutrition scores to qualify as nutritious choices for babies.
- In the toddler food category, Happy Tot had the most nutritious products overall; almost 90% had NPI scores of 68 or higher.

## Baby and toddler drink nutrition

There was less variation in nutrition content between brands in the drink categories. Most infant formula brands offered multiple varieties designed for specialized infant feeding needs, including for newborns, supplementing breastmilk, reducing fussiness, gas, or spit-up, as well as soy-based formula. All infant formula products had similar nutrition content.

Compared with infant formula, toddler milk products had higher saturated fat and sodium content, as well as more protein, but these products also contained added sweeteners, including sugar, glucose syrup solids, and honey. Notably, the American Academy of Family Physicians and the AAP do not recommend serving "toddler formula," stating that there is no evidence of advantages over whole milk for children ages 1 to 2.<sup>24</sup> Furthermore, the added sugar in these products is not recommended for children under age 2.<sup>25</sup>

- Nido 1+ and Similac Go & Grow had the highest total sugar content at 13 and 15 grams-per-serving, respectively.
- Enfagrow Toddler Transitions, a “transition formula” for children 9 to 18 months old, had the lowest NPI score (58) of any of the drinks analyzed. Although this product was marketed as appropriate for toddlers, its nutrition content was closer to infant formula.

Two nutritional supplement products from PediaSure (PediaSure Grow & Gain and PediaSure Sidekicks) had nutritious NPI scores due to relatively high protein and fiber content, but they also had a median of 18 grams of sugar per serving (comparable to an 8-ounce sports drink). In addition, PediaSure Grow & Gain contains 240 calories per serving. These products would be beneficial for sick or malnourished children but not for those at a healthy weight.

### Messages and other features of product packaging

Baby and toddler food and drink packages featured numerous nutrition-related messages, as well as messages promoting developmental and other benefits to children. Research on nutrition-related messages on children’s cereals has shown that these types of messages mislead parents to believe that products also provide health-related benefits for their children.<sup>26</sup>

- All baby and toddler drink products and 96% of food products averaged approximately six nutrition-related messages per package. Messages about the absence of unwanted ingredients (e.g., no artificial ingredients, BPA-free packaging) were more common on food packages.
- Snack food packages tended to feature more nutrition-related messages than packages for nutritious baby and toddler food products (i.e., fruits, vegetables, and meals), with up to 9.5 messages per package for Plum Organics snacks.
- Infant formula packages averaged 5.9 nutrition-related and 3.1 child development messages each. Toddler milk and nutritional supplement packages averaged 4.0 and 5.8 nutrition-related messages, respectively, and 2.6 and 2.5 child-development messages.

Additional features of product packaging raise further concerns.

- Fruits, vegetables, and meals for toddlers often came in pouch packages, including 82% of Happy Tot and 56% of Plum Organics toddler food products. Although these products qualified as nutritious, pouches do not promote young children’s eating development skills or expose children to the colors, varying taste, and textures of real fruits and vegetables. They also may promote overeating.<sup>27</sup>
- Product names did not match the ingredient lists for more than one-half of Plum Organics toddler food products and more than 10% of Happy Baby and Plum Organics baby food and Gerber Graduates and Happy Tot toddler food

products. These product names may mislead parents about what they are feeding their children and/or product healthfulness.<sup>28</sup>

- Multiple formulations of infant formula and toddler milk aimed at different ages and stages of young children were packaged in similar containers and colors with similar branding. Research indicates that this practice confuses parents and may lead them to believe that less-expensive toddler milk is appropriate for feeding infants younger than 12 months.<sup>29</sup>

### Traditional advertising

The majority of advertising spending for baby and toddler food and drinks was allocated to TV (73%) and magazines (24%).

- One nutritional supplement – PediaSure – spent \$20.7 million almost exclusively on TV, more than any other entire category in our analysis. Toddler milk brands (Enfagrow and Nido) together spent \$16.8 million.
- Gerber, Plum Organics, and Beech-Nut baby food spent a combined \$16.5 million. Toddler food brands (primarily Gerber Graduates) spent \$13.2 million.
- Infant formula brands (Gerber Good Start, Similac, and Enfamil) had the least advertising, spending \$9.7 million primarily in magazines.
- Just six brands advertised on TV in 2015: PediaSure, Gerber, Gerber Graduates, Enfagrow, Gerber Good Start, and Nido (Spanish-language only).
- From 2011 to 2015, toddler milk and toddler food brands increased their advertising spending more than other categories (+74% and +48%, respectively). Infant formula was the only category to spend less in 2015 than in 2011 (-68%).

The messages used in TV and magazine advertising for baby and toddler food and drinks highlighted product nutrition and often promoted developmental benefits for infants and young children.

#### Baby and toddler food

- These ads frequently promoted the products as nutritious with “real,” natural, or organic ingredients.
- Gerber, Plum Organics, and Gerber Graduates also highlighted developmental benefits from consuming their products. Gerber emphasized that its Lil’ Bits help babies learn to chew.

#### Infant formula

- Gerber Good Start focused the majority of its 2015 advertising on its Soothe and Gentle varieties, while Similac primarily advertised its Sensitive variety. Notably, the American Academy of Family Physicians has stated that most babies do not need specialty formulas such as these, and they are not worth the additional cost.<sup>30</sup>

- Nearly 100% of infant formula ads emphasized specific nutrients and ingredients in their products (e.g., DHA, lutein, probiotics). Gerber Good Start also focused on supporting babies' digestive health, promoting "comfort for baby" and reduced crying.
- Similac and Enfamil emphasized their products' advantages for babies' mental development (brain growth and enhanced vocabulary for Enfamil; brain and eye development for Similac).
- Gerber Good Start and Enfamil promoted their scientific formulas, and Enfamil stated that it is the "#1 brand" recommended by pediatricians.

### Toddler milk and nutritional supplements

- Enfagrow toddler milk and Pediasure emphasized similar messages in their advertisements. Both brands described benefits to children's mental performance, and presented their products as a solution to picky eating. For example, one Enfagrow ad stated, "85% of brain growth happens in the first three years, which is why it's important that children get DHA. Enfagrow Toddler has DHA, which toddlers may not be getting in their diets."
- Pediasure and Enfagrow also claimed to be the "#1 brand" recommended by pediatricians.
- In social media, brands frequently featured experts offering advice for parents on healthy eating, sleeping, and breastfeeding.
- Companies commonly provided incentives to mom bloggers to post about their brands and invited posts from "regular" moms to submit pictures or share their stories on other social media platforms, spreading their messages virally.
- One extensive campaign sponsored by Similac – #EndMommyWars – featured entertaining but controversial videos that garnered more than 20 million views on Facebook and YouTube, supported by sponsored posts on mom blogs and Facebook posts inviting mothers to join the "Sisterhood of Motherhood."
- Other common messages on social media platforms and mom blogs included contests, coupons, and invitations to join loyalty programs to reduce the cost of baby food and infant formula.
- Notably, marketing for infant formula on the internet and social media did not include the disclaimers that appeared on TV and magazine advertisements and product packages, including that breastfeeding is best for baby and that parents should consult a pediatrician before use.

### Digital marketing

The brands in our analysis tended to place less emphasis on internet advertising, spending \$1.2 million in 2015. However, these numbers do not include advertising spending or visitors to websites on mobile devices, which was not available through comScore.

- Just three websites offered by the companies in our analysis had enough internet visitors in 2015 to measure: Enfamil.com (promoting Enfamil infant formula and Enfagrow toddler milk brands), Similac.com (promoting its infant formula and toddler milk), and Gerber.com (for Gerber baby food, Gerber Graduates toddler food, and Gerber Good Start infant formula brands).
- Similac, Gerber, and Enfamil/Enfagrow (combined) also placed the most banner ads on third-party websites, averaging approximately 16 to 17 million ad views per month each in 2015. Similac alone spent \$1 million on internet advertising in 2015.
- Additional baby food brands – Happy Family, Plum Organics, Earth's Best Organic, Beech-Nut, and Ella's Kitchen – advertised on third-party websites in 2015, but purchased little or no advertising in other media.

All brands in our analysis also utilized social media marketing in 2015, including company-sponsored accounts on various social media platforms (Facebook, Twitter, Instagram, Pinterest, and YouTube) and posts on mom blogs.

### Marketing to Hispanic and black parents

Just three brands in our analysis invested in Spanish-language TV advertising in 2015, but they allocated a substantial proportion of their advertising budgets to this medium.

- In total, Enfagrow and Nido toddler milk and Pediasure nutritional supplement spent approximately \$16 million.
- Spanish-language TV advertising represented 25% of Pediasure TV advertising spending, 54% of Enfagrow TV advertising, and 100% of Nido advertising. By comparison, a previous analysis showed that the most highly advertised food and beverage brands allocated on average just 8% of their TV advertising budgets to Spanish-language TV.<sup>31</sup>
- These three brands also increased their Spanish advertising from 2011 to 2015. Enfagrow spent the most in 2015 – almost \$7 million in Spanish-language advertising, more than one-half of its total TV advertising spending. Notably Enfagrow did not advertise at all prior to 2013. Pediasure Spanish-language advertising also increased by 74%, and Nido advertising increased by 21%.
- Enfagrow, Nido, and Pediasure used similar messages in their Spanish-language advertising, emphasizing that their products help fill the gaps in young children's nutrition and promote children's growth and brain development.

Although marketing that recognizes the importance of Hispanic consumers is laudable, advertising for sugar-sweetened drinks targeted to Hispanic parents raises public health concerns due to higher rates of overweight and obesity

among Hispanic children and may contribute to health disparities affecting Hispanic communities.<sup>32</sup>

However, there was little evidence of marketing targeted to black parents in 2015.

- The brands in our analysis spent just over \$1 million in black-targeted TV advertising in 2015, but only Pediasure, Gerber baby food, and Gerber Good Start infant formula allocated a noticeable amount of their total TV advertising budgets to black-targeted TV (ranging from 2-5%).
- Advertising on black-targeted TV also declined from 2011 to 2015. In 2011, the brands in our analysis spent \$3.5 million (3.5 times the amount spent in 2015) to advertise on black-targeted TV, including Enfagrow toddler milk and Enfamil infant formula, as well as Pediasure and Pediasure Sidekicks.

## Conclusions

The nutritional quality of all baby and toddler foods in this analysis, with the exception of snacks, was very high. Beech-Nut and Gerber baby food also marketed their products in a way that supported most expert recommendations on best practices for feeding infants. In addition, traditional advertising for infant formula declined substantially from 2011 to 2015.

However, we also found many examples of marketing messages that imply that commercially prepared baby and toddler food, infant formula, toddler milk, and nutritional supplements are nutritionally superior and/or provide developmental advantages compared with breastmilk or whole milk and table food for toddlers. Common marketing themes also presented commercial products as a “solution” to normal stages of children’s development, such as crying and not sleeping through the night for babies or picky eating for toddlers. Furthermore, this marketing often promoted products that experts do not recommend serving to young children – including nutritionally poor snacks, toddler milk, and energy-dense nutritional supplements – and implied that these products are beneficial for most young children. Many do not support the development of adequate dietary behaviors, acceptance of the family’s diet, and healthy food preferences, particularly fruits and vegetables.

## Recommendations

Additional research is required to understand how often parents serve the marketed products to their young children, why parents serve these products, and whether the marketing affects parents’ understanding and attitudes about feeding practices that will lead to their children’s good health and nutrition. In particular, research is needed to determine whether claims on product packages and in advertising misleads parents to believe that products benefit their children in ways that are not supported by the scientific evidence. Additional research into healthy nutrition and development of healthy food and dietary messages is especially timely to help inform the expansion of the Dietary Guidelines for Americans

to include infants and toddlers up to age 2 beginning with the 2020-2025 edition.<sup>33</sup>

Policy makers, health professionals, and the public health community also have the opportunity to take action to address information conveyed through marketing for baby and toddler food and drink products that may not support expert recommendations for feeding young children.

## Policymakers

- The United States could follow the lead of 135 other countries and the U.S. Congress could pass laws consistent with WHO guidance to address aggressive promotion of breastmilk substitutes.<sup>34</sup> Provisions in the original WHO Code<sup>35</sup> and the recent WHO Guidance<sup>36</sup> would curtail all marketing for infant formula, toddler milk, and baby food for children under 6 months.
- Regulators should ensure that all messages on product packaging and in advertising are truthful and not misleading. In addition to its proposed guidance on structure/function claims on infant formula packaging,<sup>37</sup> the U.S. Food and Drug Administration (FDA) could also regulate structure/function claims on toddler milk products, as well as direct comparisons between infant formula and breastmilk and other claims that serve to discourage breastfeeding. The U.S. Federal Trade Commission (FTC) should similarly regulate claims made in advertising. State attorneys general can also take action to stop manufacturers from making misleading claims on product packaging and in their marketing messages.
- The United States Department of Agriculture (USDA) could use WIC’s considerable purchasing power and leverage<sup>38</sup> to require WIC suppliers to create infant formula labels free from unnecessary marketing messages and refrain from other questionable marketing practices.
- Current government-sponsored child nutrition education programs through WIC, SNAP, CACFP, and Head Start could begin to address the messages that parents receive through marketing for baby and infant food and drinks and help correct parents’ misunderstanding of these messages.

## Health professionals

- Pediatricians and other health providers can ask caregivers about their provision of marketed products to babies and toddlers, in addition to discussions about breastfeeding and infant formula. In many cases, they will be able to counsel parents that these products may be unnecessary for their child and not worth the added expense.<sup>39</sup>
- Healthcare providers serving Hispanic communities in particular should be aware of the extensive marketing for toddler milk and nutritional supplement brands aimed at Hispanic mothers.
- Healthcare professionals can also file complaints through the Better Business Bureau’s National Advertising Division system about misleading information in advertising.

including the lack of reliable scientific evidence to support many of the claims about benefits for their children.<sup>40</sup>

### Advocates

- Advocates for children's health can help raise awareness about common marketing practices used to encourage purchases of baby and toddler food and drinks, including challenging the nutrition advice provided by companies' paid experts, utilizing social media and mom blogs to help counteract these messages, and calling for consumer protection actions to address misleading information conveyed through marketing.
- Advocates could also encourage the food industry to expand the Children's Food and Beverage Advertising Initiative (CFBAI) self-regulatory program for improving

food advertising to children<sup>41</sup> to incorporate marketing of all products intended for children's consumption, including baby and toddler food and drinks.

Manufacturers of food and drinks intended for babies and toddlers should support parents' efforts to raise healthy children. They should discontinue marketing that promotes products that health professionals have determined are not necessary for most young children, messages that imply that infant formula and nutritionally poor products are beneficial for children's development, and other marketing that does not support expert recommendations for encouraging lifelong healthy dietary preferences and eating habits. This marketing undermines public health efforts to create a culture of health for our youngest and most vulnerable children.