
Hooked for Life

*How Weak Policies on Added Sugars Are Putting
a Generation of Children at Risk*



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August 2016

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[ACKNOWLEDGMENTS]

This report was made possible by the generous support of UCS members.

The authors would like to thank the following external reviewers for their time and thoughtful input: Amy Bentley, New York University; Zoe Finch Totten, The Full Yield; Lindsey Haynes-Maslow, North Carolina State University; and Marion Nestle, New York University.

We would also like to thank the many UCS staff members who reviewed, edited, and otherwise helped shape the direction of this report: Cynthia DeRocco, Danielle Fox, Gretchen Goldman, Yogin Kothari, Michael Lavender, Seth Michaels, Brian Middleton, Kathleen Rest, Andrew Rosenberg, and Heather Tuttle.

Finally, we would like to thank Karin Matchett for her masterly editing and David Gerratt for his deft layout and design.

Organizational affiliations are listed for identification purposes only.

The opinions expressed herein do not necessarily reflect those of the organizations that funded the work or the individuals who reviewed it. The Union of Concerned Scientists bears sole responsibility for the report's content.



Extensive research shows that diets high in sugary foods and beverages are associated with increased risk of tooth decay, obesity, diabetes, cardiovascular disease, high cholesterol, and hypertension.

But despite the overwhelming evidence linking sugar with negative health outcomes, federal policy has not fully acted on the best-available science to reduce added sugars in children's diets.

Children are especially at risk for developing preferences for sugary foods and beverages, beginning in utero as their brains and their taste and flavor preferences are forming. Early and repeated exposure to sweet foods and beverages shapes children's lifelong preferences for the sweet taste. Even as research continues to strengthen the evidence of the detrimental impacts of added sugar consumption on the young, food companies manufacture and aggressively market sugary baby foods, snacks, and drinks that influence children's tastes at a critical stage of development. Children of color and low-income children are put at particular risk, victims of a one-two punch of being targets of junk food marketing campaigns and having less access to healthy food options.

This report reviews the federal regulatory landscape for added sugars in food products manufactured for children aged six months, when they begin to eat solid foods, to five years. We also summarize the inception of the baby food market and detail how the food industry has worked tirelessly

to conceal information about added sugar and its detrimental health effects from the general public. Finally, we propose specific improvements that all stakeholders can make to protect children from an added-sugar overload in their diets.

For decades, communities, public health professionals, and parents across the United States and the world have been fighting obesity and attendant illnesses. While various socioeconomic, behavioral, genetic, environmental, physical, and nutritional factors combine to determine an individual's health outcomes, overconsumption of high-calorie, low-nutrient diets including sugary foods and beverages is an important culprit in the obesity epidemic. The US government has made some recent progress in drawing attention to added sugars in foods. But it has also missed some key opportunities for requiring food companies to take measures that would avoid putting children's health at risk from excess sugar—as well as for adequately educating parents, and daycare providers and teachers about the high amounts of added sugars in children's food and beverages and its ill effects on health. For instance, children under two years of age are not yet included in the *Dietary Guidelines for Americans*, and our analysis shows that children from six months to five years have not

Overconsumption of high-calorie, low-nutrient diets including sugary foods and beverages is an important culprit in the obesity epidemic.

Updated standards are needed to encourage parents and providers to limit children's added sugar intake.

been adequately protected from excessive added sugar consumption by federal nutrition programs.

The US government must shift the food policy paradigm toward one that is informed by science rather than industry pressure. Policies must protect public health, not corporate profits. Especially regarding the critical period of early childhood, federal policies should require food companies to

provide greater transparency in food labels and to substantially reduce added sugars in their products. Federal agencies must update nutritional standards for federal nutrition programs, including the Supplemental Nutrition Assistance Program; Special Supplemental Nutrition Program for Women, Infants and Children; and the Child and Adult Care Food Program, to reflect the best-available science on the relationship between diet and health. Such updated standards are needed to encourage parents and providers to limit children's added sugar intake and increase consumption of whole fruits and vegetables, lean protein, low-fat dairy, and whole grains.

Together, policy makers and the food and beverage industry can take clearly defined steps to help parents and child-care providers feed America's children a healthier diet, one that gives children a better shot at good health throughout their lives.



After two years of rulemaking, the FDA finalized positive changes to the Nutrition Facts label in 2016, highlighting added sugar and revising serving sizes. Companies will be required to include the new label on all food packages by 2018. The new label lists total sugars and an indented line underneath for added sugars. The labels shown in this photo are the FDA's original proposed labels which are slightly different than the final label.

The Obsession with Added Sugars

Americans and food companies have at least one thing in common: an obsession with added sugars. While food companies exploit the science of taste to overload their products with added sugars—sugars not naturally present in whole foods—consumers are unknowingly hooked on added sugars, through their own biological preferences and often through overzealous marketing by food companies (UCS 2015). On average, American diets are too high in added sugars and refined grains and too low in vegetables, whole fruits, whole grains, and dairy (DGAC 2015; O’Hara 2013). Unknown to many consumers, added sugars are found in just about every category of processed foods, even foods that may appear to be healthy choices such as reduced-fat salad dressing, tomato sauces, and multigrain crackers (Ervin and Ogden 2013). As a result, 13 percent of daily calories in a typical American diet—about 270 calories—come from added sugars (DHHS and USDA 2015). For reference, the recommended daily limit for added sugars for adults and children over two years of age is 10 percent of total caloric intake, or 100 to 140 calories (25 to 35 grams (g)) for children aged two to five. A limit of 5 percent is recommended for even greater health benefits (13 to 18 grams) (DGAC 2015; DHHS and USDA 2015; WHO 2015).

In two previous reports, *Sugar-coating Science: How the Food Industry Misleads Consumers on Sugar* and *Added Sugar, Subtracted Science: How Industry Obscures Science and Undermines Public Health Policy on Sugar*, the Union of Concerned Scientists (UCS) described tactics used by the food industry to keep consumers in the dark about the negative health impacts of excessive added-sugar consumption. We exposed the food industry’s unfair marketing practices, especially those

On average, American diets are too high in added sugars and refined grains and too low in vegetables, whole fruits, whole grains, and dairy.

directed at children and communities of color (Bailin, Goldman, and Phartiyal 2014; Goldman et al. 2014).

In this report, we focus on added sugars in foods intended for children from birth to five years. Industry misinformation campaigns are especially problematic for this age group because these children’s taste preferences are still developing; excessive consumption of added sugar sets them up for a lifetime of negative effects. For infants, our focus is on complementary foods and beverages (not on breast milk or formula) that are consumed beginning around age six months. We have excluded school-aged children five and above because they often have access to nutritious foods through healthy school-breakfast and -lunch programs. Admittedly, the nutrition and eligibility standards of federal school meal programs are constantly under attack by Congress and industry (Food Safety News 2016; American Bakers Association 2016); however, those concerns are beyond the scope of this report.

Despite recommendations to reduce added-sugar intake by reputable scientific institutions such as the World Health Organization, the Institute of Medicine (now the National

Academy of Medicine), the American Academy of Pediatrics, and the American Heart Association, US federal policies and nutrition guidance fail to act fully on the best-available science on added sugar's health risks, which disproportionately affect infants and young children. Further, our analysis reveals how food and beverage companies lobby the federal government to keep information about the amounts of added sugars off of food labels. The food industry has also capitalized on children's inherent attraction to sweet foods and beverages and the likelihood that early exposure in childhood will hook them on sugars into adulthood (Mennella 2014; Ventura and Mennella 2011). Collectively, a lack of strong federal policies and industry's push to increase the appeal of foods by making them sweeter and cheaper have led to a food system that fails to protect our children's health.

Given that taste preferences are shaped during early childhood, the gaps in nutritional information and the high amounts of added sugars in young children's diets make this age group a critical focus for more age-appropriate nutrition standards and clearer labeling. Improved labeling and child-specific nutritional guidance could help parents and

The food industry has also capitalized on children's inherent attraction to sweet foods and beverages and the likelihood that early exposure in childhood will hook them on sugars into adulthood.

caregivers to dramatically reduce children's added-sugar consumption, compel industry to reformulate its products into healthier options, and, hopefully in combination with other healthy behaviors, lower the incidence of diseases associated with excessive added-sugar consumption.



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Babies and children have an inherent biological preference for sugar, and are attracted to bright colors and interesting shapes. Food companies take advantage of these preferences, loading foods with added sugar and marketing them directly to children.

Added Sugars in Infants' and Toddlers' Foods and Beverages

“Sweet” is the first taste that babies are biologically programmed to enjoy, nature’s way of ensuring that they take well to nutrient-dense, sweet-tasting breast milk. When a child perceives a sweet taste, taste receptors on the tongue are stimulated. The gut also releases hormones that set off the pleasure center of the brain, activating the same neurological pathways as do addictive drugs. Exposure to sugar early in life can lead to long-lasting expectations and preferences for sweet foods (Ventura and Mennella 2011). The preference for sweet taste stays with children as they grow (IOM 2016a).

Deluge of Added Sugars in Children’s Diets

Food companies tap into children’s inherent preference for sugar and exploit their taste buds. Research on the consumption of sugary cereals indicates that children eat up to two times the serving size for higher-sugar cereals in one sitting, while they tend to consume about one serving of low-sugar cereal (24.4 grams compared to 12.5 grams) (Harris et al. 2011).

Children in the United States are overconsuming added sugars while failing to meet recommendations for fruits, vegetables, whole grains, and low-fat dairy (Figure 1, p. 7) (Krebs-Smith et al. 2010). The maximum amount of added sugars recommended by the 2015 *Dietary Guidelines for Americans* (hereafter referred to as the *Dietary Guidelines*) is 10 percent of total daily calories (DHHS and USDA 2015). However, only 28 and 21 percent of young children (two- and three-year-olds) and older preschoolers (four- and five-year-olds), respectively, had added-sugar intakes below the recommended maximum (Kranz et al. 2005). Meanwhile, even as sweets make up 15 percent

BOX 1.

What Are Added Sugars?

In the words of the Dietary Guidelines Advisory Committee, added sugars are: “Sugars that are either added during the processing of foods or are packaged as such. They include sugars (free, monosaccharides, and disaccharides), syrups, naturally occurring sugars that are isolated from a whole food and concentrated so that sugar is the primary component (e.g., fruit juice concentrates), and other caloric sweeteners. Names for added sugars include: brown sugar, corn sweetener, corn syrup, dextrose, fructose, fruit juice concentrates, glucose, high-fructose corn syrup, honey, invert sugar, lactose, maltose, malt syrup, molasses, raw sugar, turbinado sugar, trehalose, and sucrose” (DGAC 2015). Added sugars can be found in a wide variety of processed foods including baked goods, cereals, breads, frozen dinners, dressings and sauces, sodas, and fruit drinks (Ervin and Ogden 2013).

of total daily calorie intake of preschoolers aged two to four, 30 percent of these children are not consuming even one serving of vegetable each day, and 25 percent are not consuming one serving of fruit each day (Nestlé Nutrition Institute n.d.).

Many foods for young children are loaded with added sugars (Cha 2016). A 2014 study by researchers at the City University of New York analyzed 272 foods aimed at children aged one to three. They found that more than one-third of these foods contained at least 20 percent of calories from sugar and more than 40 percent of foods had sugar and/or



Fruit drinks (not made with 100% fruit juice) are the second largest beverage source of added sugars after soft drinks, often sweetened with fruit juice concentrate.

high-fructose corn syrup listed among the top five ingredients. The proportion of calories derived from sugar was highest among “snacks and yogurt blends” in supermarkets in both low- and high-income areas (Samuel et al. 2014).

Added sugars make up more than half of the daily calorie intake for over 90 percent of children aged two to eight (Krebs-Smith et al. 2010). Furthermore, a 2014 study of the consumption of sugar-sweetened beverages by the Centers for Disease Control and Prevention found that consuming sugar-sweetened beverages during infancy significantly increased the likelihood of consuming sugar-sweetened beverages more than once a day at age six. The same study found that almost one in five six-year-olds consumed sugary drinks at least once daily, including Hi-C (24 grams of sugar), Kool-Aid (19 grams of sugar), and Coca-Cola (39 grams of sugar) (Park et al. 2014). Just one serving of any of these beverages comes close to meeting or exceeding the limit of 10 percent of total calories from added sugars recommended by the *Dietary Guidelines* (see Table 1) (DHHS and USDA 2015).

Beverages and snacks are particularly high in added sugars. Of all added sugar sources for adults and children, beverages constitute nearly half of these calories (47 percent), while snacks and sweets make up about one-third (31 percent) (see Figure 1) (DGAC 2015). Children aged two to six are snacking more often and consuming more calories through snacks than ever before (Piernas and Popkin 2010). Preschoolers aged two to four consume 30 percent of their total calories from between-meal snacks (Nestlé Nutrition Institute n.d.). Among two- to three-year-olds, fruit drinks, soda, grain desserts, candy, and cold cereals were the top five contributors to added-sugar consumption (Reedy and Krebs-Smith 2010).

TABLE 1. FDA Nutrition Facts Label Will Not Sufficiently Protect Children, Age 4

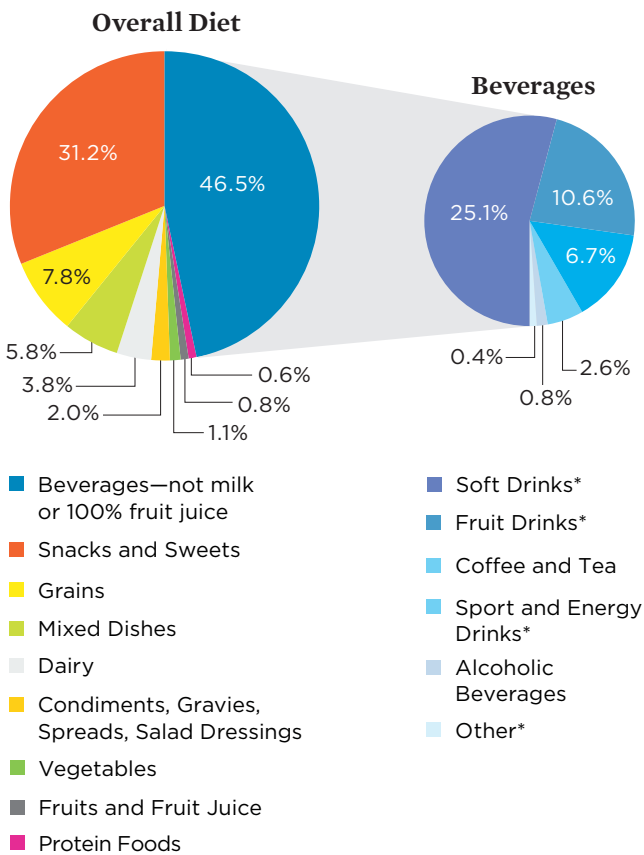
	Gender	FDA Nutrition Facts Label, Reference Calories	FDA 2016 Daily Reference Value for Added Sugars	USDA Estimated Daily Caloric Needs*	USDA/DHHS 2015 Added Sugars Recommendation, 10% of Calories
Age 4	Male	2,000	50 g (13 teaspoons (tsp))	1,400	35 g (9 tsp)
	Female	2,000	50 g (13 tsp)	1,400	35 g (9 tsp)
Age 40	Male	2,000	50 g (13 tsp)	2,600	65 g (16 tsp)
	Female	2,000	50 g (13 tsp)	2,000	50 g (13 tsp)

The Food and Drug Administration’s (FDA’s) daily reference value is established to help in the calculation of percent daily values, which clarify for the consumer how much a serving of a nutrient contributes to a person’s daily recommended limit. The reference value used for four-year-olds is the same as adults, even though they have similar calorie needs to three-year-olds. Therefore, FDA’s 2016 daily reference value for added sugars for 4 year olds is 42 percent higher than the USDA/HHS recommended added sugar level of 10% of daily calories (35 grams), while it is accurate for moderately active 40-year-old men and women.

* Calorie estimates based on moderate physical activity.

SOURCES: FEDERAL REGISTER 2016A; USDA AND DHHS 2015; DGAC 2015; USDA N.D.

FIGURE 1. Children Overconsume Added Sugars



Beverages account for half of sources of added sugars for ages two and up, while snacks and sweets make up about one-third.

* Sugar-sweetened beverages

Note: Values do not add up to 100% because baby foods, infant formulas, milk, and 100% fruit juices are excluded.

SOURCE: HHS AND USDA 2015

Not only do children’s foods and beverages often contain added sugars, but the sugars are typically present in high amounts. Moreover, the amount of sugar in toddler and baby foods does not differ from similar products meant for older children and adults (see Table 2, p. 17) (Cogswell et al. 2015). A 2015 study by the Centers for Disease Control and Prevention analyzing nutrition labels on food products found that 52 percent of ready-to-serve mixed grains and fruits for infants contained at least one added sugar, and 44 percent of those also contained more than 35 percent of calories from sugar. The most common added sugar was fruit juice concentrate. And this trend is not unique to the United States.

A recent study in the United Kingdom found that more than half of children’s fruit juice drinks—not including 100 percent fruit juices or smoothies—had sugar levels in just one serving that exceeded the maximum daily amount for children (Boulton et al. 2016).

The stark contrast between nutrition recommendations and the dietary status quo highlights the inadequacy of nutrition policies to do what they should: protect children’s health.

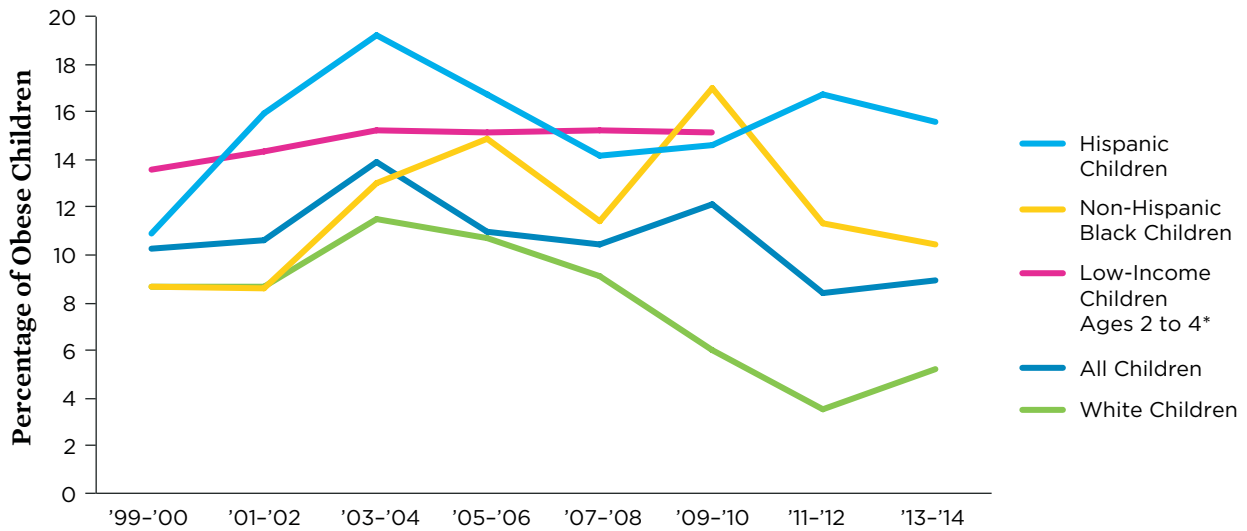
Consumption of Added Sugars Linked to Child Obesity

A growing body of scientific evidence links added-sugar consumption with the incidence of chronic diseases including obesity, diabetes, cardiovascular disease, high triglycerides, and hypertension (Basu et al. 2013; Te Morenga, Mallard, and Mann 2013; Lustig, Schmidt, and Brindis 2012; Tappy 2012; Yudkin 2012; Johnson et al. 2009; Bray, Nielsen, and Popkin 2004). Research on the link between consumption of sugar and health impacts for children points to similarly troubling findings. There is abundant evidence that sugary foods and beverages in children’s diets cause tooth decay (WHO 2003a). A diet high in added sugars is also associated with an increased risk of obesity in children (Te Morenga, Mallard, and Mann 2013; Malik et al. 2013).¹ Consumption of sugary beverages, such as sodas and fruit drinks, is associated with overweight and obesity among children between two and five years of age (DeBoer, Scharf, and Demmer 2013). And, children who consumed sugar-sweetened beverages during infancy are twice as likely to be obese as those who did not. Researchers

A growing body of scientific evidence links added-sugar consumption with the incidence of chronic diseases including obesity, diabetes, cardiovascular disease, high triglycerides, and hypertension.

¹ Obesity is defined as having a Body Mass Index (BMI) in the 95th percentile for age and sex, and overweight is defined as having a Body Mass Index (BMI) between the 85th to 95th percentile for age and sex according to the growth charts released by the Centers for Disease Control and Prevention in 2000.

FIGURE 2. Obesity Is Higher for Low-Income and Children of Color



The obesity rate for children aged two to five is 8.9 percent overall, 15.6 percent for Hispanic children, and 10.4 percent for African American children (Ogden et al. 2016). In 2010, the percentage of obese children aged two to four in low-income households was 15.1 percent, compared with 12.1 percent of all US children aged two to five (Ogden et al. 2012a; Dalenius et al. 2012). The data used for this figure are CDC analyses of height and weight data from the National Health and Nutrition Examination Survey from 1999 to 2014.

Notes: The data used for this figure is CDC analyses of NHANES height and weight data from 1999 to 2014. Data from 2005–2006 combine NHANES data from 2003–2004 and for these same years, Hispanic refers to Mexican- American boys and girls. For all other years, “Hispanic” includes Mexican Americans. Low-income obesity data from the Pediatric Nutrition Surveillance Service (PedNSS) ends in 2010 because the program was discontinued in 2011.

found that the odds of obesity at six years of age did not depend on the age of introduction of sugar-sweetened beverages during infancy or the average weekly intake, just that it happened at all (Pan et al. 2014).

In a recent public health study in Alaska of mothers of three-year-olds, 24 percent reported their child to be obese and 13 percent reported their child to be overweight (DPH 2013a). In the day prior, nearly 30 percent of three-year-olds had drunk at least one cup of sugar-sweetened or fruit drinks; 15 percent had drunk at least 8 ounces of soda; and two-thirds had eaten candy, cookies, or other sweets at least once (DPH 2013b).

Added sugar’s role in fueling weight gain is alarming given the nation’s high child obesity rates, particularly for African American and Hispanic children (Figure 2). Among children aged two to five, almost one-quarter are either overweight or obese (Ogden et al. 2014). The risk of obesity is not only high for all children aged two to five, but there is an increased risk for children in African American and Hispanic as well as low-income households. The percentage of overweight two to five year olds is 14.4 overall, and the numbers are higher among Hispanic and African American children than among white and Asian children (Ogden et al. 2014).

Obesity prevalence in this age group has risen from 5 percent in the 1970s to 8.9 percent in 2014 (Ogden et al. 2016). The Centers for Disease Control and Prevention’s National Health and Nutrition Examination Survey data are not available for Native American and Alaska Native children; however, a study of more than 8,000 four-year-olds found that 31 percent of Native American children were obese, higher than any other ethnicity (Go et al. 2013).

Although grocery stores in low- and high-income neighborhoods might have similar food offerings in terms of added-sugar content, the consumption patterns in these areas may vary (Samuel et al. 2014). Because processed foods and beverages with higher added-sugar content are often cheaper, low-income households may be disproportionately exposed to them (Drewnowski et al. 2014; Darmon and Drewnowski 2008). Low-income neighborhoods have fewer chain supermarkets, the presence of which has been associated with lower body mass index (BMI) (Powell et al. 2007a), and the number of chain stores in African American neighborhoods is roughly half of that in white neighborhoods (Powell et al. 2007a; Powell et al. 2007b). The presence of fast food restaurants is also correlated with median household income and number of African American residents, with African

Low-income communities have fewer chain grocery stores, limiting residents' exposure to healthy foods.

American neighborhoods having 60 percent more fast food restaurants than white neighborhoods (Block, Scribner, and DeSalvo 2004).

Access to sugary foods and beverages for young children can lead to troubling health outcomes. In a long-term study of 365 low-income African American preschool children aged three to five, researchers found that baseline consumption of soda and all sugar-sweetened beverages was positively associated with higher BMI scores (Lim et al. 2009). For Native Americans, the trend of decreased diet quality

correlates with the change from reliance on wild and home-grown foods to processed foods in the past few decades (Halpern 2007). High rates of obesity in Native American children contribute to high rates of diabetes, cardiovascular disease, and early mortality (Schell and Gallo 2012).

The elevated rates of childhood obesity are disconcerting considering the condition's impact in later life. Childhood obesity, especially after age three, is a risk factor for adult obesity especially if at least one of a child's parents is also obese (Whitaker et al. 1997). An obese two- to five-year-old is more than four times more likely to become an obese adult compared to healthy weight children (Freedman et al. 2001).

The association between excessive consumption of added sugars and negative health impacts on children warrants greater attention from lawmakers and regulators, who need to protect children's health by developing policy solutions that focus on the prevention of undue weight gain in young children.



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Excessive consumption of added sugars can lead to obesity, a condition that's likely to stay with a child as they progress into adulthood. Obesity is connected with a host of other health risks, including diabetes and heart disease.

Corporate Influence on Babies' and Young Children's Food

The baby and children's food market as we know it today is a fairly new construction, stemming from the gradual industrialization of the food system throughout the 20th century. The food products contained under the "baby food" umbrella include milk; juice; pureed fruits, vegetables, and meats; cereals; and other snacks intended mainly for children aged four months to two years (Big Market Research 2015). Today the global baby-food market is a \$55 billion industry, dominated by a handful of companies; Gerber (now owned by Nestlé) makes up over two-thirds of the market share (69 percent), followed by Beech-Nut (10 percent) and Hain Celestial Group (5 percent) (Lazich 2015). Two-thirds of baby-food sales are attributed to milk formula, leaving about \$17 billion for prepared baby food, dried baby food, and other baby-food products (Gale Group 2013). The industry's beginnings were far more modest.

Frank and Daniel Gerber began making pureed canned fruits and vegetables for babies in 1928 and in 1942 began to focus entirely on baby foods (Bentley 2014). In order to convince moms of the wholesomeness of its products, Gerber commissioned research showing the health benefits of canned baby foods, published in the *Journal of the American Dietetic Association*, and the company launched advertising campaigns in the *Journal* and women's magazines. Quickly, Gerber's popularity and its aggressive marketing campaign helped trigger the earlier introduction of solid foods as a supplement to breast milk (Bentley 2014). In the early 1990s, in an effort not just to have babies fed baby food earlier but to keep them on that food longer, Gerber launched its Gerber Graduates line for toddlers, expanding its reach to children aged two and older (Shapiro 1992). Gerber has been able to instill trust and loyalty in its

consumers and was even ranked first in the United States in a 1998 study of global brands with highest consumer loyalty (Cardona 1998). Today, Gerber is owned by Nestlé, one of the three biggest food companies, and manufactures all top ten baby food and snack brands for infants and toddlers (Lazich 2016; Food Processing 2015).

Early in the history of baby-food marketing, beginning in the 1930s, a strong emphasis was placed on convincing parents and the medical community of the necessity of baby food through far-reaching ad campaigns and industry-funded research (Bentley 2014). This same strategy of aggressive marketing is still used today, aimed at children and adults alike. And it works: a recent analysis of consumer purchasing behaviors over the past decade found that approximately three-quarters of the calories from the foods purchased by Americans come from processed or highly processed foods and beverages (Poti et al. 2015), and 74 percent of packaged foods contain added sugars (Ng, Slining, and Popkin 2012). It is then not surprising that even in the face of scientific findings supporting diets lower in sugar for better health outcomes (DGAC 2015; WHO 2003b), the food and beverage industry has consistently opposed efforts to reduce added sugars in packaged foods.

Aggressive Marketing by "Big Food" to Children

Young children routinely consume foods and beverages that are commonly considered adult food for purposes of nutrition labeling. Many of these snack foods and beverages, such as



Big food companies deploy licensed characters and bright, exciting packaging to market sugary foods to children.

juices, yogurts, and cereals, are high in added sugars and are marketed heavily to children (see Table 2, p. 17) (Bailin, Goldman, and Phartiyal 2014). A handful of companies—PepsiCo, Danone, General Mills, Kellogg’s, Post Holdings, Mondelez International, and Kraft Heinz Company—dominate sales in the aforementioned snack food categories (Detar 2016; Food Processing 2015; Bloom, Topper, and Sisel 2015; Plunkett Research 2015a; Plunkett Research 2015b; Gagliardi 2014; MMR 2012) and compete to win the hearts, minds, and stomachs of impressionable children through targeted advertising. The food industry spends one-quarter (\$1.8 billion) of its nearly \$7 billion annual advertising budget on ads directed at children. Many of these ads are for sugary foods and beverages and appear on television as well as the Internet (FTC 2012).

The food and beverage marketing environment is fast evolving, with more media platforms available to advertisers than ever before (Bailin, Goldman, and Phartiyal 2014; Ethan, Samuel, and Basch 2013). The media consumption habits of the public have also been changing along with advances in technology, and the age of media consumers continues to drop (Braiker 2011). Four-fifths of US children under age five use the Internet on a weekly basis, and three-fifths of children three years and under watch videos online (Gutnick et al. 2010). Most children as young as age two to three begin to recognize familiar characters on foods and, by preschool, can recall brand names after seeing them on television. This

is especially the case if the brand names are associated with cartoon characters or distinctive packaging, such as Dora the Explorer on a yogurt container or dinosaur-shaped snack foods (Healthy Eating Research 2015; IOM 2006).

In April 2015, a coalition of organizations filed a complaint with the Federal Trade Commission against Google’s YouTube Kids app. Meant for children aged five and under, this app mixed educational and entertainment video segments with advertising of fast food, junk food, and candy—to an audience unable to distinguish between content and commercials (CCFC 2015; GLIPR 2015). Companies promoting their products on YouTube Kids included members of the Children’s Food and Beverage Advertising Initiative, such as Coca Cola,

Most children as young as age two to three begin to recognize familiar characters on foods and, by preschool, can recall brand names after seeing them on television.

ConAgra, and Burger King, that had pledged not to market products to children under 12 (Kang 2015). Nestlé, for example, offers online games featuring popular nursery rhymes to make its products familiar to infants and toddlers (Friedman 2001). Through egregious targeting of children with junk food propaganda, the industry tries, and often succeeds, to hook consumers as early as possible.

Moreover, the food industry disproportionately targets low-income children and children of color. Food companies are not shy about acknowledging the importance of children of color to increasing their profits. In 2010, Coca-Cola's chief marketing officer told attendees of a Nielson marketing conference that 86 percent of the growth through 2020 for the company's youth-target market would come from "multi-cultural" consumers, especially Hispanic populations (Cartagena 2011).

A study analyzing the marketing behavior of 26 restaurant, food, and beverage companies found that African American children and teenagers (people aged two to 18) saw twice as many ads for sugary drinks and energy drinks on television as did white children and teens. The same companies were also less likely to target African American and Hispanic consumers with ads for healthier food categories such as fruits, vegetables, and water (Harris, Shehan, and Gross 2015). Spanish-language television programs watched by preschool children had significantly more fast-food ads than English-language television (Harris, Shehan, and Gross 2015). In a separate study of parents of preschoolers, half reported that their children had daily exposure to fast food and cereal marketing, 41 percent reported exposure to marketing of fruit drinks, and 36 percent reported exposure to marketing of soda (Harris et al. 2012).

By targeting children of color disproportionately, food companies are knowingly exacerbating health disparities in the United States in order to boost their bottom lines.

Self-Regulation by the Food Industry

The US Federal Trade Commission, a federal agency responsible for regulating industry marketing, gave up its efforts to restrict advertising of sugary products to children after decades of intense pressure from the food and sugar industry (Bailin, Goldman, and Phartiyal 2014). Therefore, the food industry essentially self-regulates limits on its marketing of unhealthy foods to children through the Children's Food and Beverage Advertising Initiative launched by the Council of

Better Business Bureaus in 2006. Members of the initiative include the food and beverage companies Coca-Cola, Nestlé, Kellogg, General Mills, Campbell Soup Company, Mondelez International, Kraft Foods Group, Heinz, ConAgra, PepsiCo and Unilever. The member companies have pledged to advertise foods to children that meet the initiative's nutrition criteria (FTC 2012).

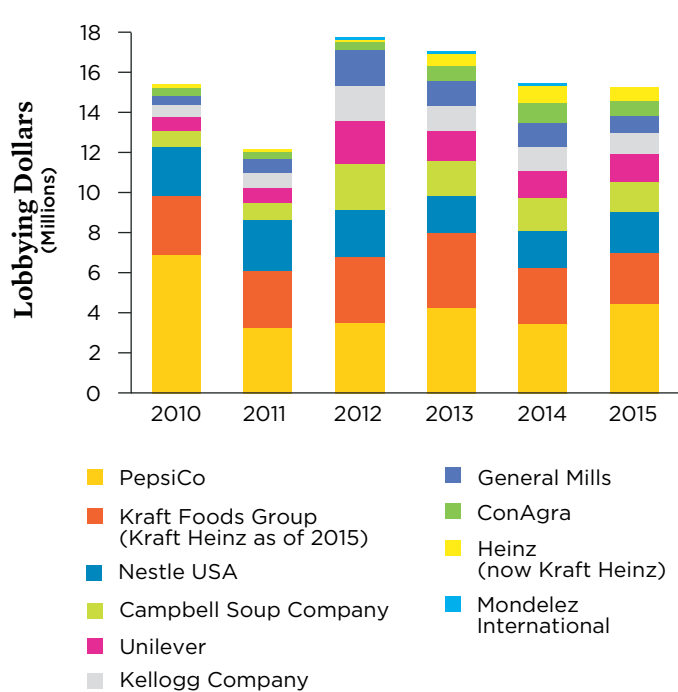
Although the initiative has been around for a decade, nutrition improvements in snacks marketed to children have been minimal to nonexistent. In 2012, the Federal Trade Commission released a report that detailed the initiative's "progress" from 2006 to 2009. Total spending on food marketing to kids over that period fell slightly, to \$1.79 billion. While spending on television ads went down, spending on online and viral marketing increased by 50 percent. In 2009, the cereals marketed to children were the least nutritious, averaging two grams more sugar per serving than those marketed to adults. Drinks marketed to children had an average of 20 grams of added sugars per serving in 2009, and three-quarters of yogurt products marketed to children contained at least 24 grams of added sugars per six-ounce serving (FTC 2012). For children aged one to three, one serving of yogurt with 24 grams of sugars represents nearly all of the recommended sugar consumption for a single day (DHHS and USDA; USDA n.d.).

Political Influence of Food and Beverage Companies

The powerful food and beverage industry routinely deploys conflicted science and money to influence public-health policies and companies lobby key members of Congress on specific bills and give money to political campaigns. For example, from 2010 through 2015, major food companies² producing products aimed at babies and young children spent more than \$90 million lobbying Congress on various pieces of legislation (see Figure 3).² Among the bills these companies lobbied on were the Healthy, Hunger-Free Kids Act in 2010, the Child Nutrition Act in 2011, and Senate and House versions of agriculture appropriations bills (Center for Responsive Politics 2016a). These same actors spent more than \$6 million contributing to the campaigns of elected officials, including the leadership of the Senate and House agriculture committees (Center for Responsive Politics 2016b). Additionally, since 2012 the American Crystal Sugar company has contributed \$20,000 to the chair of the House appropriations subcommittee

2 Nestlé (Gerber), Kellogg, General Mills, Campbell Soup Company, Mondelez International, Kraft Foods Group, Heinz, ConAgra, PepsiCo, and Unilever.

FIGURE 3. Lobbying Dollars Spent by the Biggest Snack Food Companies, 2010–2015



Collectively, many of the largest snack-food companies spent more than \$90 million lobbying Congress from 2010 to 2015. Some of the bills lobbied impacted federal nutrition programs as well as their respective funding through appropriations legislation.

SOURCE: CENTER FOR RESPONSIVE POLITICS 2016A.

on agriculture, while General Mills, Kraft Foods, ConAgra, and PepsiCo collectively donated more than \$10,000 to him in 2014 (Center for Responsive Politics 2016c; Aderholt 2012). Therefore, it is not surprising that as the Food and Drug Administration (FDA) finalized its proposed rule to include grams and percent daily values of added sugars on the nutrition facts panel, this subcommittee added report language to the 2017 House Agriculture Appropriations Bill that used industry talking points claiming the FDA’s proposal would confuse and mislead consumers (US House of Representatives Committee on Appropriations 2016). This attempted interference from Congress is an inappropriate overreach of the FDA’s authority to create science-based rules.

Food and beverage companies also exert influence directly on federal rulemaking, the process by which agencies create and implement regulations. For example, during the time that the FDA was finalizing its rule updating the nutrition facts panel to include an added-sugars declaration on food packages, the Grocery Manufacturer’s Association (a trade organization representing 300 food and beverage

companies) met with the FDA’s deputy commissioner for foods and veterinary medicine and the director of the FDA’s Center for Food Safety and Applied Nutrition a total of nine times (FDA 2016a). During this same period, companies and trade organizations formed other alliances to exert additional collective pressure on the agency: the Nutrition Facts Panel Alliance made up of the American Frozen Food Institute and the American Bakers Association, and the Food and Beverage Issues Management Alliance composed of all of the biggest food and beverage trade organizations (FDA 2016b; Garren 2014). These same companies and trade organizations also provided the overwhelming majority of comments opposing the FDA’s proposal for the added-sugar declaration on the nutrition facts panel (UCS 2015). The power, access, and money of the food industry dwarfs that of public health and other public interest stakeholders to participate in agency rulemaking.

Even more troubling is the food industry’s practice of promulgating biased science to support their actions. Often, companies commission their own research either to highlight the health benefits of their foods or to shift attention away from their less nutritious foods (Goldman et al. 2014). Studies analyzing the association between industry funding and the outcomes of those studies, including in the field of nutrition, have overwhelmingly found that funding source correlates with more favorable findings for that industry. Studies on soft drinks, juices, and milk that were funded by industry were four to eight times more likely to be favorable to the product than those done without industry funding (Lesser et al. 2007). In an analysis of 168 research studies funded by the food industry in the past year, only 12 had results unfavorable to the industry in question (Nestle 2016).

Other conflicted partnerships are more carefully cloaked. In 2015, Coca-Cola, for example, established a research institute called the Global Energy Balance Network. The soda company hired academics who had received funding from Coca-Cola and other food companies in the past (O’Connor 2015a). The institute attempted to shift the dialogue on obesity away from calorie consumption and toward exercise by funding industry-friendly science. When the organization’s motives and funding stream were exposed, it announced that it would be halting its operations due to “resource limitations” (O’Connor 2015b).

As described in the following chapter, nutritional guidance and policy have not kept up with the science on the health effects of added-sugar consumption, enabling food and beverage companies to conduct business as usual, flooding grocery stores with sugary foods and bombarding parents with inaccurate or confusing information, thus preventing consumers from making informed purchasing decisions.

Federal Regulation of Added Sugars in Young Children’s Foods and Beverages

Several federal agencies and programs exercise jurisdiction over the kinds of foods and beverages that are available to and marketed for infants and young children, and these programs can powerfully influence parents’ ability to make smart nutritional choices for their children. Through the regulation of nutrition labeling, standard-setting, education, and advertising, these programs collectively determine the amounts of added sugars that make it to the palates of young consumers and strongly affect parents’ ability to determine those amounts.

We investigated how current food and nutrition policies treat added sugars for infants and toddlers. While recent progress has been made in many of the federal programs, we found that a patchwork of regulation on added sugars still exists. Current food policies are underperforming or are misdirected in four key ways. First, children from birth to age two have thus far been excluded from the US Department of Agriculture (USDA) and Department of Health and Human Services’ (DHHS) *Dietary Guidelines*. Second, for children aged two to five, as for adults, the USDA and DHHS recommended a limit for added sugars of 10 percent of daily calorie intake despite some scientific and medical organizations suggesting that a lower limit would maximize health benefits. Third, food-labeling requirements, which cater to adult populations, do not adequately inform parents of age-appropriate serving sizes and sugar amounts for children. Finally, the nutritional standards of federal supplemental food programs are not fully aligned with the recommendations of the *Dietary Guidelines*.

Opportunities for reducing excessive sugar consumption in one of the most vulnerable subgroups, children from six months to five years of age, are plentiful. We discuss these in the following sections.

Requirements for food labeling, which cater to adult populations, do not adequately inform parents of age-appropriate serving sizes and sugar amounts for children.

Nutrition Advice

The basis of nutrition advice in the United States is the *Dietary Guidelines for Americans*, which is statutorily required to be released every five years by the DHHS and the USDA (US Congress 1990b). However, these guidelines have thus far been established only for adults and children two years and older, leaving a gap in federal nutritional guidelines for infants from birth through two years. Moreover, federal guidance for children two years and up is inadequate. The nutritional information provided for infants and young children through the *Dietary Guidelines* and through food labels fails to fully protect this age group from preventable chronic health problems.

Fortunately, there have been recent positive developments in nutrition advice for young children. The American Academy of Pediatrics started the Healthy Active Living for Families program, which includes nutrition recommendations for children up to age five (AAP 2016). And Congress, in its Agricultural Act of 2014 (the most recent “farm bill”),

BOX 2.

Gerber's Dietary Guidelines for Infants

Gerber was quick to take advantage of the gap in nutrition guidance for babies, releasing its own booklet in 1990, *Dietary Guidelines for Infants*, which downplayed the negative impacts of added-sugar consumption. The booklet told readers that “Sugar is OK, but in moderation. . . . A Food & Drug Administration study found that sugar has not been shown to cause hyperactivity, diabetes, obesity or heart disease. But tooth disease can be a problem” (Varkonyi 1990). The FDA study to which Gerber refers was heavily influenced by industry sponsorship, and the chair of the study later went on to work at the Corn Refiners Association, a trade group that represents the interests of high-fructose corn syrup manufacturers (Taubes 2011; Glinsmann, Irausquin, and Park 1986).

required the addition of pregnant women, infants, and toddlers from birth to two years to the *Dietary Guidelines* beginning in 2020 (US Congress 2014). The Dietary Guidelines Advisory Committee is a federal advisory committee made up of independent experts in the fields of nutrition and chronic disease that is charged with informing the USDA and the Department of Health and Human Services' publication. The USDA's Nutrition Evidence Library is currently reviewing the available scientific evidence that will inform the Dietary Guidelines Advisory Committee's report to be released in 2020 (CNPP n.d.).

In 2015, the committee submitted a rigorous scientific report to the DHHS and USDA for the development of the new version of the *Dietary Guidelines*, and the 2015 guidelines cited the association of a diet low in sugar-sweetened foods and beverages and higher in fruits, vegetables, and whole grains with a lower risk of cardiovascular disease, obesity, and type 2 diabetes (DGAC 2015; USDA and DHHS 2015). The DHHS and USDA followed the advisory committee's lead and listened to the scientific evidence by recommending, for the first time in the history of the US *Dietary Guidelines*, that added sugars constitute less than 10 percent of a person's daily caloric intake. However, the agencies did not take a strong enough stance against sugar-sweetened beverages, suggesting that in moderation they can be part of a healthy eating pattern (DHHS and USDA 2015). This weakness in the final guidelines is particularly problematic for children, given their risk of developing life-long preferences based on early exposures to sugar-sweetened beverages (Pan et al. 2014).

While limiting caloric intake for added sugars to a maximum of 10 percent is a step in the right direction, major scientific bodies have recommended stricter limits. Depending on the level of physical activity and daily calorie need, even a 10 percent limit could easily put children over the FDA-set daily reference value of 25 grams of added sugars per day (see Table 1, p. 6) (Federal Register 2016a). In 2015, the World Health Organization strongly recommended that adults and children limit added sugars intake to less than 10 percent of their total daily caloric intake and advised that a reduction to five percent or less would be more beneficial (WHO 2015). The United Kingdom's Scientific Advisory Committee on Nutrition's working group on carbohydrates intake found that added-sugar consumption in adults and children is associated with risk of tooth decay, diabetes, and obesity and recommended reducing intake to 5 percent of daily calories in order to substantially decrease the disease risk (Gallagher 2014). And although the Dietary Guidelines Advisory Committee recommended that added sugars constitute a daily maximum of 10 percent of total calories, its modeling of a healthy dietary pattern for adults and children over two showed that if all other food-group recommendations were met, then only 12 to 17 grams of added sugars per day could even be consumed within the total daily calories; translating to roughly five percent of daily calories for children aged two to five (DGAC 2015; USDA and DHHS 2015). The DHHS and USDA should focus on prevention of childhood obesity in the 2020 *Dietary Guidelines* as the agencies consider recommendations for added-sugar consumption for children from birth to five.

Labeling Regulations

NUTRITION FACTS PANEL

Regulations for the nutrition facts panel were first mandated in the early 1990s by the Nutrition Labeling Education Act (US Congress 1990a). In the nearly three decades of its existence, the nutrition facts panel has achieved a high level of familiarity with the American consumer, and research shows that people with certain dietary restrictions or illnesses are particularly likely to read and use food labels for their purchasing decisions (Reed and Phartiyal 2016). The FDA requires food companies to list percent daily value (the daily limit) for key nutrients, focusing on daily reference values for adults based on a 2,000 calorie diet, and it makes only a few adjustments for infants and children under four years of age.

Thus far, food labeling on added sugars has lagged behind the science on its health effects, allowing food companies to hide added sugars from consumers by not explicitly



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Many yogurt products are deceiving. While yogurt has naturally occurring sugar, children's yogurt products also contain high amounts of added sugars. And even though many yogurt products are marketed to children under four, the serving sizes and daily values on packages are based on adult diets.

listing them (Federal Register 2015a). However, this will soon change. After two years of rulemaking, in 2016, the FDA issued the first revisions to the nutrition facts panel since its inception, revisions that will go into effect in July 2018. The rule will require the declaration of added sugars on the label for all ages along with their percent daily values based on a limit of 50 grams for adults and children four years and older and 25 grams for children one through three years (Federal Register 2016a).

Food companies are required to include a footnote on the bottom of the label that specifies that daily limits are based on a 2,000 calorie diet for adults and on a 1,000 calorie diet for foods “specifically for infants and children less than 4 years of age” (CFR 2010). However, while setting percent daily values is a step in the right direction, the FDA’s changes will still mean that a four-year-old’s reference point is based on adults’ daily calories. Many food items commonly consumed by young children are considered adult foods, such as cereal, yogurt, crackers, and chips. Therefore, for many foods aggres-

sively marketed to children, the nutritional information on the labels pertains to adults (CFR 2010). Food companies are able to produce high-sugar foods advertised to children that have serving sizes and sugar amounts appropriate for adults, as illustrated in Table 2. This means that when a parent or caregiver feeds a four-year-old child a snack whose label declares that its sugar constitutes 10 percent of the daily recommended calories, for that child, the product’s sugar could actually constitute 15 percent of his or her daily recommended calories, depending on the caloric intake and physical activity level of the child (see Table 1, p. 6). Moreover, the footnote citing children’s daily calories is not even always present on children’s foods. It does not have to be included if, for example, the package is too small (CFR 2010).

The inappropriate reference point for children also translates to serving sizes. Whereas serving sizes for children under four years are based on the average amounts that children eat at one time, serving sizes for ages four and up are based on adult-sized portions (CFR 2012; CFR 2010). Food labels meant for four-year-old children have the same

BOX 3.

Added-Sugar Transparency on Food Labels

Little research has been done to assess the amount of added sugars that food companies are actually putting in their products. One recent study attempted to begin filling this data gap; lab analyses found that 74 percent of samples of infant formulas, breakfast cereals, packaged baked goods, and yogurts had at least 20 percent of total calories attributed to some form of sugar. More than four-fifths (83 percent) of products contained at least one source of added sugar, and, of those, almost three-quarters (73 percent) of total sugar was added. In 14 out of 20 yogurt products tested, more than 50 percent of total calories came from added or naturally occurring sugar.

The study authors also found that actual sugar content determined from lab analysis tended to be wildly different from the amount declared on the label. In baby foods, for example, sugar contents varied from 88 percent less sugar than shown on the label to 82 percent more. This means that even label-savvy parents could be making decisions about sugar content for their children based on grossly incorrect information (Walker and Goran 2015). Hopefully, the FDA’s new added-sugar labeling requirements will improve accountability from food companies in communicating correct sugar amounts to consumers.

TABLE 2. Child Analogs of Adult Foods Are Equally Loaded with Added Sugars

	Child Version	Adult Version
Yogurt Drink	Danimals Smoothie Drink, Strawberry Explosion and Striking Strawberry Kiwi Flavors (Dannon) <ul style="list-style-type: none"> • Serving size: 3.1 ounces (92 mL) • 10 g of sugar (some naturally occurring) • 10% sugar by volume • Sugar in first three ingredients 	Danactive Yogurt, Strawberry (Dannon) <ul style="list-style-type: none"> • Serving size: 3.1 ounces (93mL) • 13 g of sugar (some naturally occurring) • 13% sugar by volume • Sugar in first three ingredients
Yogurt	Gerber Graduates Yogurt Blends, Strawberry Banana <ul style="list-style-type: none"> • Serving size: 99 g • 13 g of sugar (some naturally occurring) • 13% sugar by volume • Sugar in first two ingredients 	Dannon Fruit on the Bottom Yogurt, Strawberry Banana <ul style="list-style-type: none"> • Serving size: 170 g • 24 g of sugar (some naturally occurring) • 14% sugar by volume • Sugar in first two ingredients
Hot Cereal	Gerber Breakfast Buddies Hot Cereal with Real Fruit and Yogurt, Bananas and Cream <ul style="list-style-type: none"> • Serving size: 130 g • 11 g of sugar • 8% sugar by volume • Sugar listed in first two ingredients 	Quaker Instant Oatmeal, Blueberries & Cream (PepsiCo) <ul style="list-style-type: none"> • Serving size: 35 g • 11 g of sugar • 31% sugar by volume • Sugar listed in first two ingredients
Cold Cereal	General Mills Lucky Charms <ul style="list-style-type: none"> • Serving size: 3/4 cup (27 g) • 10 g of sugar • 37% sugar by volume • Sugar in first two ingredients 	Kellogg's Special K Multigrain, Oats & Honey <ul style="list-style-type: none"> • Serving size: 2/3 cup (29 g) • 8 g of sugar • 28% sugar by volume • Sugar in first three ingredients
Granola Bar/ Fruit Bar	Gerber Graduates Cereal Bars, Apple Cinnamon <ul style="list-style-type: none"> • Serving size: 1 bar (19 g) • 8 g of sugar • 42% sugar by volume • Sugar in first three ingredients 	Kellogg's NutriGrain Bars, Apple Cinnamon <ul style="list-style-type: none"> • Serving size: 1 bar (37 g) • 12 g of sugar • 32% sugar by volume • Sugar in first five ingredients
Dessert Pudding	Gerber Graduates Pudding Grabbers, Mango <ul style="list-style-type: none"> • Serving size: 99 g • 11 g of sugar • 11% sugar by volume • Sugar and "mango puree concentrate water" listed in first three ingredients 	SnackPack, Banana Cream Pie (ConAgra) <ul style="list-style-type: none"> • Serving size: 92 g • 11 g of sugar • 12% sugar by volume • Sugar in first three ingredients

Sugar amounts on food labels can be misleadingly low. Child analogs to certain adult foods often contain similar or higher sugar amounts and serving sizes despite being meant for children with half the recommended calorie intake as adults. This is not acknowledged in current food labels.

SOURCES: QUAKER OATS 2016; DANNON 2016A; DANNON 2016B; DANNON 2016C; KELLOGG'S 2015; GENERAL MILLS 2014; KELLOGG'S 2011B; SNACK PACK N.D.; GERBER N.D.A.; GERBER N.D.B.; GERBER N.D.C.; GERBER N.D.D.

serving sizes as adults (based on 2,000 to 2,500 calorie diets) even though they consume roughly the same amount of food as three-year-olds (1,000 to 1,400 calorie diets) (USDA n.d.). Thus, four-year-olds' serving sizes and quotas for added sugars are as high as those for adults, which can be damaging for less healthy nutrients, such as added sugars.

Because the nutrition facts panel only has to include the child-specific labeling if a food is “represented or purported” to be for use by infants or children up to four years of age, companies can avoid including separate labels for children if the targeted consumer is at all ambiguous (CFR 2010). For example, Honey Nut Cheerios and Frosted Flakes—the two best-selling varieties of cereal and widely consumed by young children—do not include separate labeling for children under four, and their serving sizes and daily values are based on adult diets (Bamford 2016; Cheerios n.d.; Kellogg’s 2011a). While an individual’s age and physical activity together determine his or her recommended calorie intake, for children aged four to ten, whose calorie requirements are lower than 2,000, labels do not give parents sufficient information on the appropriate nutrient content of the foods they are purchasing for their kids. So, while parents might think a serving size or daily value listed on a seemingly children’s food, such as Yoplait’s Go-Gurt, is based on a three year old’s nutritional

needs, it is actually based on the dietary needs of parents themselves. Allowing young children to become accustomed to diets laden with added sugars at adult levels can set them up for unhealthy food preferences that stick for life.

NUTRIENT-RELATED CLAIMS

Nutrient content claims, health claims, and structure/function claims are statements on food packaging asserting a level of a nutrient in a specific food, a food’s impact on a disease or health condition, and a nutrient’s effect on a bodily structure or function, respectively. Loose regulations and enforcement of these claims have allowed food companies to exercise creativity in making foods sound healthier than they really are (Harris et al 2010). This practice applies to adult and children’s food alike. Foods intended for children under

Companies manufacturing foods intended for children may make nutrient and health claims for a food even if it contains high levels of added sugars.



Fruit Roll-Ups are a snack for children containing several types of added sugars, including pears from concentrate, corn syrup, and sugar. The serving sizes and daily values on the label are based on a 2,000 calorie adult diet, even though the product is targeted at children.

two years of age are not allowed to contain nutrient content claims, but there are no age restrictions for health or structure/function claims (CFR 2015; CFR 2011a; CFR 2011b). The FDA has certain disqualifying levels for saturated fat, total fat, cholesterol, and sodium, above which makers of a product may not make any health claims (CFR 2015). Added sugar is notably absent from this category. Companies manufacturing foods intended for children may make nutrient and health claims for a food even if it contains high levels of added sugars. For example, Yoplait’s Trix Strawberry Banana Bash yogurt cups intended for children have a front-of-package label reading “NO high fructose corn syrup,” yet the product lists sugar as the second-most predominant ingredient and has 13 grams (about 3.25 teaspoons) of sugar per 4 ounces of yogurt (Yoplait n.d.). While the claim is technically true, it is misleading because it implies that the product is low-sugar (Pomeranz 2013). Added sugars, whether from corn syrup, sugar cane, or sugar beets, are a source of harmful calories (O’Callaghan 2014; Hellmich 2012). In the current form of the nutrition facts panel, it is impossible for parents to tell how much of the 13 grams is from added sugars if they wish to compare it with the *Dietary Guidelines’* recommendation



Participants of the Supplemental Nutrition Assistance Program (SNAP) may purchase a variety of packaged food items with their benefits, including soft drinks, energy drinks, candy, cookies, snack crackers, and ice cream. The program could better serve food-insecure children and families by providing more access and incentives for healthier food purchases.

of 10 percent of daily calorie intake for children over two. Parents often misinterpret these claims on children's foods, believing that products are healthier than they actually are (Harris et al. 2010).

Federal Supplemental Food Programs

There are several federally funded programs designed to address food insecurity in the United States. Serving one-quarter of Americans, these programs have a strong influence on what foods many people buy and eat (IOM 2011). The programs that specifically impact babies and young children include the Supplemental Nutrition Assistance Program (SNAP); Special Supplemental Nutrition Program for Women, Infants and Children (WIC); and the Child and Adult Care Food Program (CACFP). SNAP, formerly known as food stamps, is the largest USDA-run food assistance program, funded as a part of the Agriculture Act, or farm bill, which is reauthorized roughly every five years (FNS 2014a). WIC and CACFP are USDA programs that are reauthorized every five years through the Child Nutrition Reauthorization Act. Through these programs, the US government is credited with supporting millions of young children and families. However, political and industry pushback have meant that foods offered through these programs are not as healthy as they could be, considering the evidence on the risks of early exposure to added sugars.

SUPPLEMENTAL NUTRITION ASSISTANCE PROGRAM (SNAP)

Of the 45 million Americans receiving SNAP benefits, about 20 million are children. While the program is unable to serve all food-insecure children, it does positively impact the lives

of those who participate. SNAP benefits lifted almost 5 million people out of poverty in 2014, 2.1 million of whom were children (Executive Office 2015). SNAP deals with the reality that the same populations afflicted with hunger are those experiencing the highest rates of obesity and overweight. Part of the reason for this is the abundance of inexpensive, high-calorie foods that are more accessible to Americans than are healthier alternatives (Healthy Eating Research 2010).

A study in 2015 found that the children participants in SNAP were less likely to have a healthy weight and more likely to be obese than higher-income non-participant children; 15 percent were overweight and another 16 percent were obese (Condon et al. 2015). SNAP participants are also less likely than non-participants to consume fruits and vegetables, specifically in their raw form, and more likely to consume regular (sugar-sweetened) soda (Condon et al. 2015). These numbers are not necessarily a function of SNAP, but the program could address them if it were to closely follow federal nutrition standards for SNAP purchases; provide more access, incentives, and flexibility for healthier food purchases; and receive increased funding for the education component.

SNAP currently allows soft drinks, energy drinks, candy, cookies, snack crackers, and ice cream to be purchased with benefits because they are considered food items. The USDA considered restricting the types of products allowed as SNAP benefits, but concluded that there are "no clear standards to defining foods as good or bad, or healthy or not healthy." The USDA asserts that making those changes would be a substantial financial burden for the program (FNS 2007). In 2015, the National Commission on Hunger, a bipartisan group appointed by US Senators and House members, recommended that Congress prohibit a list of sugar-sweetened beverages from SNAP's allowable food items (National Commission on Hunger 2015). Its recommendations were commended by SNAP champions in Congress (McGovern 2016), but as of this writing there has not been legislative progress based on these recommendations.

SPECIAL SUPPLEMENTAL NUTRITION PROGRAM FOR WOMEN, INFANTS, AND CHILDREN (WIC)

Women who are pregnant or have recently given birth, infants, and children up to age five are eligible for WIC benefits if they have a household income at or below the poverty level or are already enrolled in other federal assistance programs such as SNAP or Medicaid. WIC provides supplemental nutrition in the form of food vouchers and health education for more than nine million low-income women, infants, and children from birth to five across the nation (FNS 2014b). Participation in the program has been correlated with improved fetal development, fewer premature births and lower incidence

of low infant birth weight, and improved diets for children and pregnant and postpartum women (Rose, Habicht, and Devaney 1998; Devaney and Schirm 1993; Devaney 1992; GAO 1992; Mathematica Policy Research 1990; FNS 1987).

WIC food offerings have seen some recent improvements. The Healthy, Hunger-Free Kids Act of 2010 required the USDA to improve the nutritional quality of school meals, based on recommendations from the Institute of Medicine and *Dietary Guidelines* (US Congress 2010). The USDA has since worked to improve foods allowed as a part of the WIC program, giving more access to fruits and vegetables; reducing the allowance of whole milk, eggs, and juice for women and children; and removing juice from infant packages (Thorn et al. 2015; Federal Register 2014). In light of the most recent *Dietary Guidelines* release, the Institute of Medicine's Food and Nutrition Board members are currently working on recommendations to the USDA for additional changes to the WIC food package (IOM 2016b).

Still, there are some problematic allowances. Currently, 100-percent fruit and vegetable juice and flavored milk are still a part of the WIC food packages for children aged two to five, despite the often high sugar content of these items. Additionally, yogurt may contain up to 40 grams (10 teaspoons) of sugars per cup (CFR 1999). For the sake of comparison, 1 cup of plain, nonfat yogurt contains about 16 grams of naturally occurring sugar; therefore, a product with 40 grams has about 24 grams (6 teaspoons) of added sugars. This means that even if WIC providers followed the guidelines, a three-year-old eating one cup would exceed the *Dietary Guidelines'* recommended 10 percent of calories from added sugars per day (DHHS and USDA 2015).

Fortunately, the WIC community, including the National WIC Association which advocates on behalf of WIC participants and state WIC agencies, agrees on some improvements to the program: that the sugar limit of yogurt be lowered to meet the recommendations of the *Dietary Guidelines*, that the allowance for fruits and vegetables be increased, and that participants have the option to substitute items such as juice and pureed baby food with fresh, frozen, or canned fruits and vegetables (National WIC Association 2015). This was echoed by several state agencies at a workshop convened in 2016 by the Institute of Medicine addressing possible revisions to the WIC food packages (IOM 2016b). These changes would give parents more flexibility with feeding their children and would support their efforts to reduce or completely avoid added sugar in their children's foods.

CHILD AND ADULT CARE FOOD PROGRAM (CACFP)

CACFP provides reimbursement for meals and snacks to certain day care, afterschool care, and emergency shelter facilities for children up to age 12 and for adults in adult day care, with the majority of participants from low-income households (IOM 2010). CACFP bridges the gap in nutrition for preschool-aged children before they head off to school and have access to school food programs. There are 3.3 million children under five served by CACFP centers (IOM 2010).

CACFP centers are already expected to follow the *Dietary Guidelines*, and the program can be further strengthened. For instance, in 2011, the Institute of Medicine released recommendations for preventing obesity in child care centers serving children from birth to five years old, promoting the consumption of a variety of healthy foods (IOM 2010). These recommendations were put into practice in 2016, when the USDA released a final rule that will help protect young children participating in CACFP from excessive added-sugar consumption, through:

- prohibiting the service of flavored milk to children two through five
- prohibiting the service of juice for infants and requiring that juice is used to meet the fruit requirement at only one meal daily (including snacks) for children aged one and up
- limiting the sugar content of yogurt served to 23 grams or less per 6 ounces (for reference, previously three-year-olds could consume up to eight ounces of yogurt per day, containing up to 40 grams of sugar) (Federal Register 2015b)
- requiring that breakfast cereals conform to WIC requirements
- prohibiting grain-based desserts from counting toward grain requirements (Federal Register 2016b)

Collectively, the federal programs can do much more to translate the scientific evidence of added sugars' health effects to inform nutrition policy and demand transparency from the food industry, particularly to protect one of the more vulnerable groups—children under five.

BOX 4.

Food Banks

Food banks collect and distribute food to smaller food pantries across the country. Feeding America is a nonprofit network of more than 200 food banks, distributing to 60,000 food pantries and meal programs to provide food services to Americans living with hunger. While there is no federal nutrition standard for food banks, about 20 per-cent of all foods distributed through Feeding America is through the Emergency Food Assistance Program run by the USDA, a program whose allowed foods are low in added sugar, sodium, and fat (FNS 2013). For all other donations, Feeding America recommends but does not require food banks to use and follow its *Detailed Foods to Encourage* publication (Feeding America 2015a). In this publication, Feeding America’s sugar standards are based on the industry-led Children’s Food and Beverage Advertising Initiative (Feeding America 2015b). But food banks can do better than follow industry-led sugar reduction initiatives, which are both voluntary and not based on the best-available science. They

could, for example, create policies that encourage the donation of healthy foods that align with the *Dietary Guidelines* and help individuals reduce added-sugar consumption.

There has been some leadership among regional food pantries to this end. In California, the Alameda County Community Food Bank began providing fresh fruits and vegetables and other healthier options to its patrons (Campbell, Ross, and Webb 2013). The Food Bank of Central New York has insisted on a “no soda, no candy” policy along with healthier requirements for donated food (Handforth, Hennink, and Schwartz 2013). While encouraging, these policies are by no means the norm. A 2013 survey of 137 food banks in the United States revealed that while the majority of food banks had at least committed to nutritional quality, only a minority had formulated written nutrition policies (Campbell, Ross, and Webb 2013).



USDA

Food banks serve a variety of needs, most notably the Emergency Food Assistance Program, but also sometimes partnering with the USDA to supply food for WIC, SNAP, and CACFP. While these programs and services can certainly have a positive affect on their participants, regulations on the food provided should be strengthened. Juice and yogurt are two examples of food provided by these services that have a high enough sugar content to make them an unhealthy choice.

Conclusion

Gaps in federal nutrition policies have kept information about sugar and its detrimental health effects out of the public's mind. Food companies take advantage of the government's weak safeguards and lobby against restrictions that would limit their ability to conduct business as usual—selling sugar-sweetened foods and beverages to children and adults. Young children are the direct victims of both the industry's exploitation of their biological preference for sweetened products and the government's failure to fully protect them.

With the accumulating scientific knowledge linking sugar consumption to weight gain and several chronic diseases—type 2 diabetes, cardiovascular disease, high cholesterol, and high blood pressure—the government has made some efforts to curb sugar consumption. But it needs to do more. Parents of young children still do not have clear nutrition information on labels, babies are left out of the *Dietary Guidelines for Americans* completely, and food companies are still aggressively targeting children in marketing campaigns for some of their least nutritious products.

Our children are our future. The federal government must do more to prevent chronic diseases among our youngest generation. There is a clear opportunity to improve the information on and quality of foods for young children. It's as easy as taking candy from a baby.

Recommendations

Added sugar's ill effect on children's health is clear. Stronger policies are needed to prevent children from falling into a lifelong trap of obesity, diabetes, and associated disorders. And the rising rates of health care expenditures on these

Young children are the direct victims of both the industry's exploitation of their biological preference for sweetened products and the government's failure to fully protect them.

diseases are exacting an enormous toll on our society. Obesity, for instance, is estimated to be behind 16 percent of all US medical expenditures (\$210 billion in 2008 dollars) (Cawley and Meyerhoefer 2012). The federal government should be guided by a precautionary principle when crafting its future policies on added sugars in children's diets. To help prevent excessive added-sugar consumption and avoidable health problems in young children, we recommend the following actions on the part of food and beverage manufacturers and federal entities:

DHHS and USDA:

- Close the gap in nutrition advice for children from birth to two years of age by using the best-available science as the 2020 *Dietary Guidelines* are developed with inclusion of this age group.

- Consider lowering the limits on daily caloric intake from added sugars for children birth through five.
- Ensure transparency around conflicts of interest of members of the Dietary Guidelines Advisory Committee, requiring that the committee be constituted in a fully public process.

FDA:

- Reduce the daily recommended limit for added sugars for four-years-olds to 25 grams from the current 50 grams.
- Designate a disqualifying level for added sugars, above which food products may not contain health, nutrient content, or structure/function claims.
- Hold food companies accountable in providing accurate added sugar amounts on food labels.

National Institutes of Health:

- Conduct research and fund independent cohort studies that track added-sugar consumption in young children, especially those in low-income households and households of color.

USDA:

- Develop and actively implement a targeted education campaign for parents and child-care providers of infants and young children on how to reduce added-sugar consumption, rather than solely advising consumers to cut added-sugar consumption through the *Dietary Guidelines*.
- Revise WIC food packages to align with recommendations on added sugars in the *Dietary Guidelines* by increasing allowances for fresh fruits and vegetables and including the option for participants to use vouchers for juice and jarred baby foods to purchase fresh fruits and vegetables instead.

Federal Trade Commission:

- Set mandatory requirements to limit company advertising of foods and beverages targeted towards children, rather than allowing industry to use its own, voluntary standards in the Children’s Food and Beverage Advertising Initiative.

National Academy of Medicine (formerly the Institute of Medicine):

- In its current review of the integrity of the dietary guidelines process as mandated by Congress in 2015, encourage the maintenance of integrity of a robust process undertaken by the Dietary Guidelines Advisory Committee, one that is fully transparent, inclusive of public input,

Stronger policies are needed to prevent children from falling into a lifelong trap of obesity, diabetes, and associated disorders.

and free of committee member conflicts of interest.

- Through its upcoming report on revisions to the WIC food packages, push for increased flexibility by increasing participants’ voucher amounts for young children and allowing the substitution of fresh, frozen, and canned fruits and vegetables for jarred baby food and juices.

US Congress:

- End congressional interference in the science-based process of agency rulemaking.
- Reauthorize the Child Nutrition Reauthorization Act with sufficient funding to make changes for healthier diets among children from birth to five years participating in WIC, including decreasing the amount of added sugars allowed in a yogurt serving and increasing access to fruits and vegetables.

Surgeon General:

- Issue a call to action for reduced added-sugar intake in young children as a part of the office’s national obesity prevention strategy.

Food and beverage manufacturers:

- Serve as partners rather than foes of the public health community by reducing the amounts of sugar added to foods and drinks intended for or widely consumed by young children.
- Strictly follow federal guidelines as well as voluntary commitments to not market junk foods to young children under age six.

Clear paths exist for federal policies to shift the food landscape within which parents and child-care facilities make decisions about what foods to give the children in their care. Food companies need to incorporate into their business plans a crucial consideration for children’s health and wellbeing. Government and private-sector actors can help shield infants and young children from the current onslaught of added sugars, giving them a better chance of healthy childhoods and long, healthy lives.

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Hooked for Life

How Weak Policies on Added Sugars Are Putting a Generation of Children at Risk

Food companies are loading children's foods with added sugar, setting them up for a lifetime of health risks. Updated nutritional guidelines and stronger federal policies can protect the health of our children. It's as easy as taking candy from a baby.

Added sugars make up a significant proportion of Americans' diets and are associated health risks including heart disease, obesity, diabetes, and hypertension. Weak federal nutrition policies have allowed added sugars to become ubiquitous in processed foods, even those meant for our nation's youngest generation. And since infants' and toddlers' taste preferences are still forming, the introduction of added sugars early in their lives sets them up for a lifetime of proclivity for sugar-rich foods.

The food industry has prioritized its bottom line over the health of young children. The industry lobbies against more transparent food labeling and common-sense nutrition standards

while heavily marketing sugary foods to children under five and selectively marketing them to children of color. Although there has been some government-led progress toward creating food policies that reflect the scientific evidence on the health risks of added sugars, more must be done to protect children's health. To help improve individuals' quality of life and to secure the health of the nation, regulators and lawmakers must make a strong commitment to help prevent diet-related diseases in children, and the adults they will become, by limiting added sugars in foods and giving parents and caregivers as many tools as possible to raise a healthier next generation.

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