Chapter 7
Monitoring Food Company Marketing to Children to Spotlight Best and Worst Practices

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In 2006, the Council of Better Business Bureaus and ten of the largest children's food marketers launched the Children's Food and Beverage Advertising Initiative (CFBAI), an industry self-regulatory program for the purpose of "Changing the nutritional profile of food and beverage products in child-directed advertising" (BBB, 2009). These companies' pledges were fully implemented by 2008, and as of August, 2011, 17 companies had joined the CFBAI. The food industry has declared the CFBAI a success, with companies exhibiting excellent compliance with their pledges and the number of food and beverage advertisements on children's television programming falling by 50% from 2004 to 2010 (BBB, 2010).

The public health community, however, holds a widely different perspective on the success of the CFBAI. Many advocates have expressed concerns that the program provides considerable public relations value for the food companies, but has done little to improve the obesinogenic food marketing environment that surrounds children in the USA (Harris, Pomeranz, Lobstein, & Brownell, 2008; Hawkes, 2007; Sharma, Teret, & Brownell, 2009). As discussed in Chaps. 6 and 8 (Aoki & Moore; Powell, Schermbeck & Chaloupka), numerous loopholes in the pledges allow food companies to continue to extensively market their unhealthy products to children.

We propose that independent research plays an important role in this debate to (1) define marketing outcomes that are likely to improve children's health; (2) measure progress over time in achieving these outcomes; and (3) provide support for public health actions to limit unhealthy food marketing to children. In this chapter, we first describe five case studies in which research highlighted shortcomings in CFBAI pledges. We then discuss four different research methods that can be used to monitor food marketing practices, including syndicated data analysis, content analysis, field audits and marketing impact research, and appropriate uses, strengths and

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weaknesses of each method. Finally, we provide suggestions for researchers who wish to provide support for public policy and industry actions that will improve children's health.

Case Studies

The following case studies illustrate the differences in industry-defined measures of success and measures that are likely to improve children's health. These examples document the results of studies conducted by researchers who are independent of the food industry. The research described in these five case studies provide evidence that, even though companies have complied with the CFBAI pledges they have defined, the outcomes are not likely to improve children's health. Case study 1 shows that children's exposure to all food advertising on TV has increased; case studies 2 and 3 document food company advergames and other digital marketing, product placements, and event sponsorships that continue to promote foods of poor nutritional quality; case study 4 provides data to show that preschool-age children continue to view similar numbers of TV ads compared to older children who are supposed to be the audience for these ads; and case study 5 demonstrates that companies continue to promote products to children that do not meet criteria for healthful foods that children should be encouraged to consume.

Increase in Children's Exposure to TV Food Ads

Participation in the CFBAI requires companies to restrain from advertising unhealthy foods during TV programs with an audience comprised of more than a specified percentage of children (typically 35%) (CFBAI, 2011a). Companies, therefore, have placed limitations on advertising that specifically targets children, but do not address advertising that appears on general-audience programming viewed by large numbers of children. A report by the Federal Trade Commission (FTC, 2007) demonstrates that approximately half of all food ads viewed by children appear on general-audience programming. As children can be affected by any food advertisement they view, whether or not it is directed toward them exclusively, public health researchers are concerned about children's total exposure to food advertising. Total exposure is defined as the average number of food ads viewed by children, regardless of the type of programming during which they are placed.

Companies' CFBAI pledges were fully implemented by 2008 (Peeler, Kolish, & Enright, 2009). Children's exposure to all food advertising on television peaked in 2004—when the average child (ages 2–11) viewed 14.0 food ads per day—and then declined by 12% to 12.3 ads viewed per day in 2008 (Rudd Center for Food Policy & Obesity [Rudd Center], 2011). However, 2010 saw a dramatic reversal of this positive trend. In 2010, the average child viewed 13.4 food ads per day, an increase

of 9% from 2008 and just 4% fewer than the 14.0 ads per day viewed in 2004 (Rudd Center, 2011). Fast-food restaurants and cereals were the largest food marketers to children, accounting for more than 40% of food ads seen by children in 2010. From 2008 to 2010, there was a 7% increase in ads viewed by children for these categories. Of additional concern, advertising for two of the least nutritious product categories, carbonated beverages and candy, increased dramatically from 2008 to 2010. Exposure to candy advertising doubled from 2008 to 2010 among all age groups and reversed the substantial declines in candy advertising from 2004 to 2008. In 2010, candy overtook prepared meals as the second most-viewed category of food advertising accounting for more than 8% of food ads seen by children. Although just 2% of children's total exposure to food advertising, carbonated beverage advertising increased by 70% from 2008 to 2010.

The initial goal of the CFBAI was "to shift the mix of advertising primarily directed to children to encourage healthier dietary choices" (BBB, 2011). In spite of this goal, children's total exposure to advertising for six of the least nutritious product categories (candy, sweet snacks, crackers/savory snacks, carbonated beverages, fast food, and other restaurants) increased by 60% from 2008 to 2010; in 2010, these categories represented 78% of all food ads viewed by children, compared to 53% in 2008 (Rudd Center, 2011). In comparison, although fruit and vegetable ads seen by children doubled from 2008 to 2010, they contributed less than 1% of total food ads. A report from Children Now in 2009 found that, after implementation of the CFBAI pledges, more than two-thirds of all advertising by participating companies participating were for the least nutritious products (i.e., "whoa" foods) which are supposed to be consumed only on special occasions, such as your birthday (Kunkel, McKinley, & Wright, 2009). The same report found that it would require viewing of about 10 h of children's TV programs to find one healthy food ad. During that same period, a child would see 55 ads for foods of low nutritional quality and 20 ads for foods of moderate nutritional quality.

The increases in candy and carbonated beverage advertising demonstrate a significant shortcoming of the CFBAI. All CFBAI participating companies have pledged that they will not advertise these products in child-targeted media, and content analyses of advertising on children's television confirm that carbonated beverages are no longer advertised on these forms of programming. However, the increase in carbonated beverage advertising viewed by children was even higher than the increase for adolescents and adults. These results indicate that companies may be placing their ads on programs viewed by disproportionately more children than older age groups, although the programs did not meet the cut-off for child targeted programming specified in their CFBAI pledges.

Also, since participating in CFBAI pledges is voluntary, nonparticipating companies have a competitive advantage as they are not restricted by advertising limitations. Across all children's food ads on television, 29% were placed by companies that did not participate in the CFBAI, such as Chuck E'Cheese restaurants and Topps candies; therefore, their marketing practices to children were not guided by the CFBAI requirements (Kunkel et al., 2009). In summary, participating companies have reduced the number of advertisements on children's TV that do not

meet their criteria for "healthy dietary choices"; however, children continue to view just as many ads on TV for unhealthful products.

Food Company Advergames

In recent years, the public health community has raised concerns about food company-sponsored advergames on the internet. Advergames are designed to market products in a fun, engaging manner that is highly appealing to children (Winkler & Buckner, 2006). In addition, they commonly incorporate features that encourage children to return to the websites multiple times, thus increasing their exposure to these marketing messages (Santos, Gonzalo, & Gisbert, 2007). Food companies use advergames extensively. Approximately 80% of company websites for foods promoted on children's television networks included advergames (Culp, Bell, & Cassady 2010); and 546 games were found on food company websites (Moore & Rideout, 2007). As with television advertising, the majority (84%) of foods and beverages promoted in advergames contained high levels of sugar, fat, and/or sodium, and just 3% contained information about nutrition or health (Lee, Choi, Quilliam, & Cole, 2009). Playing advergames is an effective marketing strategy for companies. They increase positive brand associations (Winkler & Buckner, 2006; Wise, Bolls, Kim, Venkataraman, & Meyer, 2008), brand recall (Bardzell, Bardzell, & Pace, 2008; Cauberghe & De Pelsmacker, 2010; Lee & Faber, 2008; Winkler & Buckner, 2006), and brand preferences (Mallinckrodt & Mizerski 2007). In addition, playing unhealthy advergames increases consumption of other unhealthy snack foods (Harris, Speers, Schwartz, & Brownell, 2012).

To address these concerns, participating companies in the CFBAI have also pledged to advertise only "healthier products" on the internet (CFBAI, 2011a). This pledge includes restrictions on products promoted through advergames. As with pledges on TV advertising, child-targeted internet advertising is defined by participating companies as advertising on websites where the percentage of children in the audience exceeds a certain threshold. The majority of companies have set this threshold at 35%; three companies have set 30% thresholds (Burger King, Hershey, and McDonalds): and one company (Mars) has set the threshold at 25% (CFBAI, 2011b).

We utilized syndicated data from comScore, a market research company that tracks visitors to company websites and their usage of these websites, to determine whether food companies have complied with their CFBAI pledges regarding advergames (see Harris et al., 2012). As found for TV advertising, this analysis revealed that food companies have complied with their pledges to refrain from promoting foods that they have not identified as "healthy dietary choices" on company websites that meet their definitions of "child-targeted." However, this analysis also revealed that company definitions of child-targeted websites do not capture the vast majority of websites that use advergames to promote foods to children. Of the 26 websites sponsored by CFBAI participating companies that contained advergames, just one

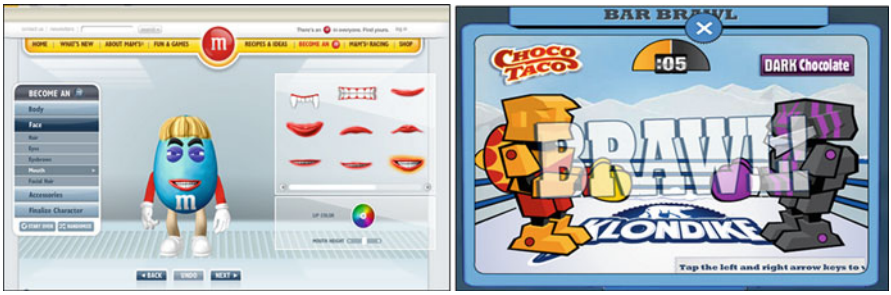

Exhibit 7.1 Examples of child-targeted advergames from M&M and Klondike

(McDonald's McWorld.com) had a large enough audience to meet the company's definition of child-targeted advertising (see Table 7.1). None of the websites had a child audience of 35% or more, the definition of child-targeted used by the majority of CFBAI participants; and just 3 of the 26 websites had child audiences of 25% or more. As a result, companies continued to use advergames to promote products that they have not identified as healthy dietary choices, including Klondike ice cream bars and M&Ms and Wonka candies. Examination of individual websites demonstrates that even sites with audiences comprised of less than 20% children (e.g., Postopia.com, ClubBK.com, and Wonka.com) featured content that was highly appealing to children (Exhibit 7.1).

Increased attention to food company advergames appears to have had some impact on companies' marketing practices. In 2009, we conducted a comprehensive analysis of cereal companies' child-targeted marketing, including advergames (Harris, Schwartz, Brownell, et al., 2009). Immediately after publication of the report, PepsiCo discontinued their child-targeted website promoting Cap'n Crunch (TheGazette.com, 2011). In addition, in 2011 General Mills discontinued its Millsberry.com website, the largest and most frequently visited food company advergame site on the internet (Millsberry.wikia.com, 2011).

Marketing to Children "Under the Radar"

Coca-Cola has been a member of the CFBAI since 2006 and has pledged to not "place any of [the company's] brands' marketing on television, radio and print programming that is primarily directed to children under the age of 12 and where the audience profile is higher than 35% of children under 12" (Coca-Cola, 2010). Although Coca-Cola appears to have complied with this pledge, our research reveals substantial loopholes that allow the company to continue to reach large numbers of children "under the radar" using product placements on prime-time programming, event sponsorships, and digital marketing which are not covered by their pledge. In fact, across all measured media, children saw more ads for Coca-Cola in 2010 than

Table 7.1 Unique visitors and usage for company websites containing advergames for CFBAI participants: Average per month in 2009[a]

			Children (2–12 years)		Usage by visitors 2–17 years		
Website URL	Company	Category	Unique visitors	% of all visitors	Pages per visitor	Minutes per visit	Visits per visitor
CFBAI-approved products							
millsberry.com	General Mills	Cereal	284.3	17.6%	100.7	21.1	3.0
happymeal.com	McDonalds	Fast food	189.3	28.5%	8.5	6.1	1.8
mcworld.com	McDonalds	Fast food	100.9	33.0%	4.7	3.2	1.8
pfgoldfish.com	Campbell Soup Co	Crackers	74.1	34.5%	7.9	7.1	1.4
applejacks.com	Kellogg Company	Cereal	72.0	22.5%	4.3	4.7	1.4
postopia.com	Ralcorp	Cereal	60.9	17.1%	18.7	11.8	2.1
frootloops.com	Kellogg Company	Cereal	58.6	24.5%	1.9	1.3	1.1
clubbk.com	Burger King	Fast food	35.2	18.5%	13.1	7.5	1.6
luckycharms.com	General Mills	Cereal	31.5	16.2%	2.5	2.2	1.3
poptarts.com	Kellogg Company	Pastry	21.4	13.2%	14.5	2.1	2.3
ricekrispies.com	Kellogg Company	Cereal	17.1	6.0%	5.6	3.2	1.1
reesespuffs.com	General Mills	Cereal	12.4	17.8%	15.5	9.1	1.2
cornpops.com	Kellogg Company	Cereal	12.3	20.7%	3.4	2.0	1.2
Products CFBAI companies do not market to children							
klondikebar.com	Unilever	Ice cream	32.7	24.9%	2.9	1.7	1.1
wonka.com	Nestle	Candy	26.1	18.8%	2.7	2.4	1.3
mms.com	Mars	Candy	25.7	8.5%	5.3	4.3	1.2
nabiscoworld.com	Kraft Foods	Cookies, crackers	24.9	5.4%	5.5	3.3	1.5
cocacolazero.com	Coca-Cola	CSDs Diet	15.5	19.8%	2.4	1.5	1.1
mycoke.com	Coca-Cola	CSDs	15.5	10.5%	30.7	4.7	1.7
countrycrock.com	Unilever	Misc	10.9	14.8%	8.9	0.8	4.7
m-ms.com	Mars	Candy	8.6	7.7%	3.6	1.9	1.1
butterfinger.com	Nestle	Candy	6.6	13.8%	5.6	3.7	1.1
twix.com	Mars	Candy	6.3	8.5%	1.9	2.6	1.1
stridegum.com	Cadbury Adams	Gum	4.3	6.2%	13.8	6.0	1.1
pringles.com	Unilever	Chips	2.9	8.7%	N/A	N/A	N/A
cheetos.com	PepsiCo	Chips	2.6	4.5%	1.3	1.7	1.1

[a]comScore Media Metrix report

for any other sugary drink, even those that were specifically marketed to children (i.e., Capri Sun, Kool-Aid, and Sunny D) (Harris, Schwartz, Brownell, et al., 2011).

Product placement occurs when a brand is placed, either visually or audibly within mass-media programming, reaching TV audiences in a way that many may not recognize as advertising (Wilde, 2009; Stanley, 2010). Children and adolescents may be more susceptible to these disguised persuasive attempts (Auty & Lewis, 2004; Ulaby, 2008).

We conducted research using Nielsen data to examine child, adolescent, and adult exposure to food, beverage, and restaurant brand appearances on prime-time TV in 2008 (Speers, Harris, & Schwartz, 2011). Exposure to brand appearances was compared with exposure to TV advertisements for the same categories and companies using additional Nielsen data. In 2008, Coca-Cola brand appearances accounted for 15% of all appearances that occurred on TV and 70% of all appearances actually viewed by children. Coca-Cola was the only company for which exposure to brand appearances exceeded exposure to TV advertisements; children saw almost 10 times as many Coke brand appearances as traditional Coke TV commercials. The average child viewed 198 Coke appearances in 2008, nearly four times per week, and 97% of them appeared on *American Idol.* Although *American Idol* did not meet Coca-Cola's definition of child-targeted programming, nearly 2.2 million children watched each episode of *American Idol* in 2008 (Marketing Charts, 2008).

Marketing through sponsorships is not addressed by the CFBAI, but studies have shown that they positively change a consumer's willingness to buy brands (Harvey, 2010) and that sponsorship exposure has a positive impact on brand liking, trust, and loyalty (Mazodier & Merunka, 2011). Coca-Cola has sponsored the Olympic Games since 1928 and has already committed to continuing the partnership through 2020 (Olympic.org, n.d.). In 2008, Coca-Cola became "the official soft drink of the Olympic Games," when it sponsored the Beijing Summer Games, a move which proved to be very effective for the company. IEG estimated that the company spent as much as $400 million on the sponsorship and related marketing (e.g., Olympic themed packaging, local events, television advertising) (Fowler & McKay, 2008).

Among all 2008 Olympics sponsors, Coca-Cola achieved the highest spontaneous awareness with "38 percent of online consumers being able to recall the brand without prompting" (Nielsen, 2008a). Coca-Cola also had the highest unaided recall for Olympic viewers, individuals who are very interested in the Olympics, and even individuals with little or no interest in the Olympics (TNS, 2008). More than 1.4 million children (ages 2–11) watched NBC's prime-time coverage of the Beijing Olympics (Nielsen, 2008a). Given the effectiveness and breadth of Coca-Cola's Olympics marketing strategy, Coca-Cola is likely to be highly associated with the Olympics in the minds of children.

In a comprehensive analysis of sugary drink and energy drink marketing in 2010 we found that 63% of all full-calorie soda and energy drink ads on national television included sponsorship of an athlete, sports league or team, or an event or cause. Local television advertising also highlighted sponsorships of events such as athletic events, concerts, fairs, festivals, and theme park attractions (Harris et al., 2011) (Exhibit 7.2).

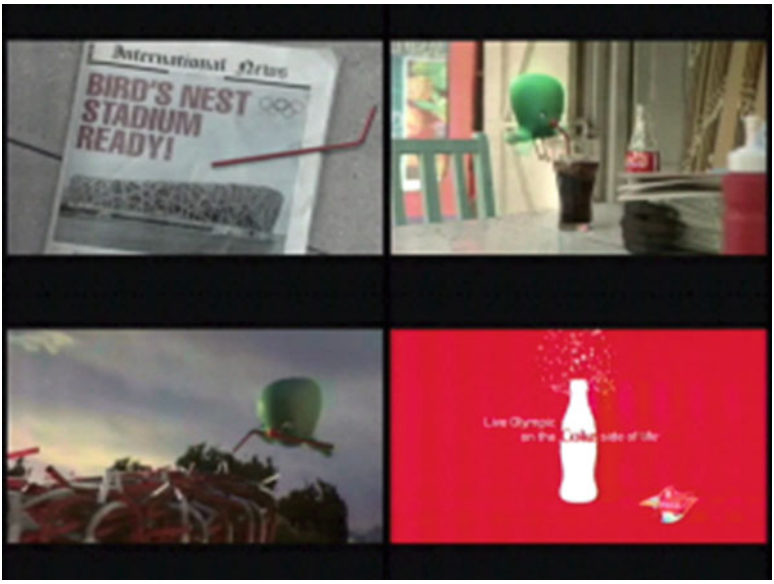

Exhibit 7.2 "Bird's Nest," a Coca-Cola television ad which was liked and recalled most during the 2008 Beijing Summer Games (Nielsen, 2008b)

Coca-Cola's CFBAI pledge indicates that it will not buy advertising or place marketing messages on internet sites, interactive games, or mobile phone programs where more than 35% of the audience is comprised of children under 12 (CFBAI, 2010b). As found with advergames, the brand continued to reach significant numbers of children in the digital space through its websites, social media accounts, and mobile marketing applications.

The Coca-Cola website MyCokeRewards.com was the most popular sugary drink website among young people, attracting 42,000 unique child visitors (ages 2–11) every month in 2010 (Harris et al., 2011). The site's content may not be overtly child-targeted, but many of the rewards had strong youth appeal (e.g., Disney Cruise vacations, Six Flags theme park passes) making it more popular than Capri Sun's website. In 2011, Coca-Cola had the most popular brand on Facebook and the eleventh most popular page on all of Facebook, with over 31 million fans (TheNextWeb.com, 2011). While the Facebook terms of service do not allow children under 13 to become members of the site, this prohibition is easily circumvented: five million Facebook users were younger than 13 years (Consumer Reports, 2011) and approximately 37% of 10- to 12-year-olds had a Facebook account (Pieters & Krupin, 2010). As of May 2009, 29% of teens had added a brand to their online network (Fuse Network, 2009); since then, the promotion of food brands on Facebook has skyrocketed (Braat, 2011).

Coca-Cola also has released a number of applications for the iPhone, the two most popular of which have significant youth appeal: a "Magic Coke Bottle" reminiscent of a magic 8-ball toy and "Spin the Coke" which allows users to play spin

the bottle with a virtual coke. comScore does not provide data for children under age 12, but as of September 2010, 39% of all persons 12+ using the Magic Coke Bottle app were teens and 26% of all persons 12+ using the Spin the Coke app were teens (Harris et al., 2011). As these cases demonstrate, children continue to be exposed to significant advertising messages for Coca-Cola, in spite of the company's CFBAI pledge that it will not advertise to this age group.

Advertising to Very Young Children

The majority of CFBAI participating companies, including General Mills and Kellogg's, have also pledged that they will not advertise any products to children under age 6. Advertising to very young children is a concern because a large body of psychological research shows that, until age 7 or 8, children do not have the cognitive capacity to understand that advertising presents a biased point-of-view; they simply view it as another source of information (Kunkel et al., 2004; John, 1999; Ward, Wackman, & Wartella, 1977). As a result, any form of advertising to very young children is inherently unfair (Kunkel et al., 2004) and even potentially misleading or deceptive (Pomeranz, 2010). Even executives in the advertising industry believe that advertising to very young children is unethical (Geraci, 2004).

In spite of these pledges and the research supporting the need to protect very young children from advertising, recent analyses of TV food advertising using Nielsen data have demonstrated that 2- to 5-year-olds view nearly as many TV food ads as somewhat older children. For example, in our analysis of advertising for children's cereals, preschool-age children viewed just 10% fewer TV ads for these products than did elementary school-age children (Harris, Schwartz, Brownell, et al., 2009). Similarly, Powell and colleagues showed that young children (ages 2–5) continue to view 10.9 food-related ads every day, just 14% fewer than the 12.7 food-related ads viewed by older children (ages 6–11) (Powell, Szczypka, & Chaloupka, 2010). In addition, many child-targeted ads from CFBAI participating companies contain cartoon spokes-characters, toy giveaways, and other techniques designed to appeal to very young children (Harris, Schwartz, et al., 2009; Harris, Schwartz, Brownell, et al., 2010).

As with the CFBAI pledges concerning internet marketing, the reason that young children continue to view considerable amounts of television food advertising is that companies' definitions of advertising targeted to very young children do not apply to any of the advertisements viewed by this age group. Companies limit their pledges to programming in which 30–50% (varies by company) of the audience is under 6 years (CFBAI, 2011b). However, most programming that meets this definition does not allow advertising of any sort, such as children's shows on public television or NickJr (the preschool-targeted programming from Nickelodeon). We found more than 30,000 telecasts in 2010 in which young children (2–5 years) comprised 35% or more of the audience (Nielsen, 2010). However, 83% of those telecasts appeared on networks, such as Nick Jr., PBS, and Disney Channel that do not accept outside advertising. As evidenced by their high exposure to advertising

for children's cereals (Harris, Schwartz, et al., 2009), preschool-age children watch considerable amounts of children's television also viewed by older children; therefore, companies can claim that they do not advertise to very young children while these youngest consumers continue to view extensive advertising for their products.

Promotion of "Healthy Dietary Choices" on Child-Targeted Programming

The CFBAI report on compliance with company pledges in 2009 detailed few instances (0.07%) where non-CFBAI-approved products appeared in advertising to children (BBB, 2010). However, examination of the content of child-directed TV advertising for products that companies have defined as healthy dietary choices demonstrates that these ads do not actually promote a healthy diet. For example, McDonald's pledged to advertise only its Happy Meals that include chicken nuggets or a hamburger, apple dippers with low-fat caramel dipping sauce, and low-fat white milk (CFBAI, 2010a). Although as of 2009, McDonald's had determined that these meals meet its criteria for healthful choices for children, they contained 610 and 680 mg of sodium respectively, and both exceeded recommended limits for sodium (544 mg) for preschoolers set by the Institute of Medicine (IOM, 2007) and the Interagency Working Group on Food Marketed to Children (IAWG, 2011). Both meals meet the IOM maximum calorie criteria for elementary school-age children (650), but the hamburger meal does not meet the calorie cutoff for preschoolers (410) (IOM).

We conducted a content analysis of McDonald's child-targeted ads to determine how the company portrayed the healthy options available in Happy Meals, including apple dippers, 100% juice, and plain low-fat milk (Harris, Schwartz, et al., 2010). Although McDonald's did feature only these healthy side options and drinks in its child-targeted advertising, the food was never the primary focus of the ads. The food was usually depicted briefly and in the background. Rather, the ads focused on the toy being given away with the Happy Meal, children playing, scenes from a movie tie-in, or just the Happy Meal box itself. Thus, the ads were focused on creating positive associations with the brands, and not on the food itself (Exhibit 7.3).

In addition, we conducted an audit of sales practices at fast-food restaurant to understand what side and beverage options were offered to customers when they ordered a kid's meals (Harris, Schwartz, et al., 2010). Field personnel disguised as customers purchased whatever was offered with the meal automatically, or the first item offered if the employee offered a choice. McDonalds and Burger King were among the five top fast-food chains included in the analysis, which was conducted at 50 locations of each chain. At McDonald's, employees automatically provided french fries with Happy Meals 86% of the time, and a cup for a soft drink 54% of the time. Therefore, even though the restaurant pictured the healthier side and beverage items in its advertising to children, parents were not even given an option to order them the majority of the time.

Exhibit 7.3 Kid's meal ads from McDonalds where food is not the primary focus of the ad

In response to pressure from the public health community, in 2011, McDonald's announced that it would change the default option for its Happy Meals (AboutMcDonalds.com, 2011). The new Happy Meal includes both a half serving of apple slices, 1.1 ounces of french fries, the choice of a hamburger, cheeseburger or Chicken McNuggets, and a choice of beverage, including 1% low-fat milk and fat-free chocolate milk. McDonald's press release claimed that "the impact will be an estimated 20% reduction in calories of the most popular Happy Meals, also reducing fat in those meals" (AboutMcdonalds.com, 2011).

Marketing Research Methods

Table 7.2 presents four of the methods we have used to assess food marketing to children, including syndicated data analysis, content analysis, field audits, and impact research. Each of these methods is useful in different situations, and all have advantages and disadvantages.

Syndicated Data Analysis

Syndicated data are provided by market research firms and can be useful to assess company marketing practices. Typically, these data are obtained through a variety of methods, including survey panels, monitoring systems placed on media devices, and scanned barcodes. Nielsen, comScore, and Arbitron are three of the largest providers of syndicated data to measure exposure to different media. Market research firms, such as the NPD Group and SymphonyIRI, also provide sales and purchasing data for food and beverages.

Table 7.2 Research methods that have been used to measure progress in improving the food marketing environment

Research method	Definition and use	Strengths	Weaknesses
Syndicated data analysis	Data purchased from outside market research companies (e.g., Nielsen, comScore, Symphony IRI, NPD Group) to assess marketing exposure and product sales	• Industry standard • Comprehensive	• Expensive • Limited flexibility/ designed for industry purposes • Reporting restrictions • Not available for newer forms of marketing • Proprietary methods
Content analysis	Coding to assess the creative content of individual advertisements and other marketing messages	• Scientific qualitative data • Highly flexible	• Limits to coverage • Time and labor intensive • Measures incidence, not exposure • Somewhat subjective
Field audits	Individuals assess incidence and content of marketing in different geographic or other locations, for marketing that differs by location	• Representative sample of localized marketing activities • Scientific qualitative data • Highly flexible	• Expensive • Less control over data collection • Measures incidence, not exposure
Impact research	Measures the health impact of exposure to different forms of marketing using different methods, including experiments, natural experiments, and surveys	• Provides rationale for limiting food marketing • Identifies specific messages, techniques, etc. of concern • High media and public interest in findings • Relatively inexpensive	• Limited by existing marketing examples • Relatively narrow focus on specific types of marketing and/or consumers • Difficult to show long-term and/or cumulative effects

The case studies cited earlier used syndicated data extensively. Powell and colleagues also use syndicated data from Nielsen to examine exposure to food advertising on TV to children and teens and to identify the products advertised so that they can determine the nutritional quality of the foods in ads seen most often by young people (e.g., Powell et al., 2010; Powell, Schermbeck, Szczypka, Chaloupka, & Braunschweig, 2011). Syndicated data allow researchers to quantify children's and adolescents' exposure to many forms of marketing, including TV advertising, radio advertising, product placements on prime-time TV, company websites, banner advertising on third-party websites, and mobile advertising. Syndicated data are also available to measure product sales and consumption patterns.

There are a number of advantages to working with syndicated data. Nielsen, comScore, and Arbitron are considered to be the standard bearers in TV, digital media, and radio measurement, respectively. Their data are considered to be the best available, and are commonly used by advertisers to develop and assess their media plans. Pricing for advertising is based on the ratings established by Nielsen for TV, by Arbitron for radio, and, in certain instances, by comScore for the internet. Furthermore, the data these firms provide are comprehensive. For each media being measured, there is a wide range of metrics available and new ones constantly being added to respond to an evolving market. Therefore, findings of studies that use these data are less subject to criticism by the food industry.

Despite these benefits, syndicated data come with drawbacks as well, chiefly their expense. Most academic and public health researchers do not have the budgets to purchase syndicated data, which can cost tens to hundreds of thousands of dollars. Also, researchers are not the primary audience for these data; they are primarily purchased by businesses to optimize their advertising or understand competitors' activities. Therefore, working with syndicated data can be a challenge. The majority of metrics provided are of little use to public health researchers; they have been created to help advertisers attend to particular optimizations or other minute details. And uncovering the metrics or set of reports that are, indeed, useful for researchers can be challenging. Frequently, support staff at syndicated data firms do not understand the needs of researchers as well as they understand those of their traditional corporate clients. Limitations are sometimes placed on what researchers can report, such as specific company or retailer information, as market research companies do not want to offend or alienate their core customer base. We have found this to be particularly true of firms that provide food and beverage sales data.

In addition, the availability of syndicated data lags behind the adoption of new forms of marketing. For example, we have not yet identified a source of syndicated data for social media that meets our purposes. There are no data available that will provide demographic profiles for fans of food and beverage Facebook pages or Twitter accounts, nor have we found a data source that will provide us with an accurate understanding of who is watching specific videos on YouTube. As these media become more and more established forms of marketing, we expect this situation to change.

And finally, there are limitations to what syndicated data can tell researchers. For example, these data can quantify how many people viewed a particular banner ad, but cannot tell how many interacted with it. Interaction data are tracked by the advertisers themselves and not by the data providers. Syndicated data only provide half of the picture; we can get exposure numbers but not data that reveals ad effectiveness.

Content Analysis

Content analysis is used in communications research to evaluate the content of messages (Lombard, Snyder-Duch, & Campanella Bracken, 2002). It allows researchers to apply scientific principles to analyze any type of communication,

such as that found on TV, in print, on the internet, or in social media. Thus, it is a systematic way of looking at qualitative data. Content analysis can be used, for example, to assess the messages portrayed in food advertising. In this way, it can help highlight industry practices which may not be obvious to most consumers.

Much research has shown that the content of food marketing has an effect on children's eating behaviors, namely that it causes children to prefer and ask for the products advertised (IOM, 2006). Given these findings, content analysis becomes an important tool to understand what kinds of foods and messages are being advertised to children. For example, content analyses repeatedly show that the majority of foods which appear on child-targeted programming are either high in fat, sodium, or added sugars or low in essential nutrients (Batada & Wootan, 2007; Folta, Goldberg, Economos, Bell, & Melzer, 2006; IOM, 2006; Reece, Rifon, & Rodriguez, 1999; Stitt & Kunkel, 2008). The same is true for food ads that appear during general-audience programming viewed most often by children (Harrison & Marske, 2005). Unhealthy eating messages also abound, such as anytime snacking (Harrison & Marske, 2005) and promotion of positive emotional associations with these unhealthy foods (Folta et al., 2006; Schor & Ford, 2007).

Content analysis begins with development of a codebook, which is a collection of both implicit (e.g., fun, cool) and explicit (e.g., value, new) messages about the advertised product that the researcher would like to capture. It is essential that a draft of the codebook be tested using actual advertisements. Once a codebook is drafted, intercoder reliability should be assessed to determine if all coders have reached a reasonable level of agreement using statistics such as Scott's Pi, Krippendorff's Alpha, or Cohen's Kappa. Without good intercoder reliability, the data are subjective interpretations and not scientifically valid (Lombard et al., 2002). Once an adequate level of agreement has been reached (typically between 0.70 and 0.90) for each variable tested, a formal and final reliability testing should be conducted during the coding of the full sample. The size of the reliability sample should be no less than 10% of the full sample (Lombard, 2010).

Content analysis is fundamental to mass communication research (Lombard et al., 2002) and has a number of strengths, including that it can be used to evaluate any type of media. As discussed, it is also a way to look at the deeper meaning or psychology behind messages in advertising in a quantifiable way. If done correctly, content analysis results can be generalized and replicated.

However, one of the major weaknesses of the method when examining TV advertising is that the researcher must either purchase copies of creative executions from a company that tracks them (e.g., Kantar Media), which can be very expensive, or limit the analysis to advertisements that can be recorded by the researchers themselves. The majority of content analyses are conducted using ads aired during a specific time period, and often during limited types of programming, such as children's programming. Content analyses can also be time- and labor-intensive, requiring many coders to assess larger-sized samples. Another limitation is that content analyses measure incidence, not exposure. Researchers can determine that 80% of all ads portrayed a "cool" message, but will not know how many children actually saw this message on TV. Lastly, if not conducted with well-defined variable codes and

adequate reliability testing, content analysis can be quite subjective and arguably meaningless. Researchers decide what is important to code and a team of coders must agree on what "cool" means, for example. Implicit measures such as these are less clear-cut and researchers must identify ways to operationalize them to reach acceptable coder agreement.

Field Audits

According to the FTC (2008) report on food marketing to children and adolescents, approximately 28% of food advertising spending directed at youth (more than 457 million dollars) was at the local level, including in-store marketing, packaging and labeling, premiums, events, cross-promotion licenses, athletic sponsorships and philanthropy. Despite the substantial amount of these types of marketing, they are not tracked by traditional syndicated data providers. Therefore, researchers must design and implement their own studies to track marketing activity in local communities. In some cases, researchers can collect these data themselves. For example, (Yancey, Cole, Brown, et al., 2009) conducted an audit of food billboards to show that billboards that promote fast food and sugared beverages appear seven to nine times as often in low-income Latino and black communities than they do in white and high-income communities. In addition, researchers at the Rudd Center analyzed product packaging in local supermarkets to identify child-targeted promotions on packages (Harris, Schwartz, et al., 2010), and child features and nutrition-related claims on ready-to-eat cereals (Harris, Schwartz, et al., 2009) and sugary drink packages (Harris et al., 2011).

Another option for this type of research is to commission a company that specializes in in-store testing, distribution and shelf studies, mystery shopping, merchandising, and shop-alongs for companies to assess their own and competitors' marketing practices. These companies maintain staffs of field representatives in major markets across the country. For example, we utilized such a company to conduct an audit of in-store marketing of ready-to-eat cereals in a nationally representative sample of 400 supermarkets located in 18 metropolitan areas (Harris, Bargh, et al., 2009; Harris, Brownell, et al., 2009). Researchers developed detailed instructions and a comprehensive survey instrument for field personnel to record shelf facings, in-aisle displays, and promotional activities conducted by national cereal brands over a four-week period. The same company was used to conduct an audit of signs at fast-food restaurants, which detailed the menu items, messages, and promotions on signs located inside and outside the restaurants, as well as the examination of default side and beverage items offered with kids' meals described earlier (Harris, Schwartz, et al., 2010).

Although expensive, these types of audits of marketing practices provide several advantages. They are highly flexible and can be designed to provide exactly the type of information researchers are looking for. When using a firm with a national staff of field representative, these audits can provide a nationally-representative sample

of localized marketing activities. In addition, as with content analyses, they provide a scientifically valid means to collect qualitative data. Therefore, field audits of local marketing activities add to our understanding of marketing in local communities, including at the point of purchase, and provide invaluable information that traditionally is not tracked by syndicated data providers.

Impact Studies

In a comprehensive review of the research on food marketing to youth, the IOM called for additional studies to understand the impact of food marketing to children (IOM, 2006). Since then, numerous studies have documented the extent and content of child-targeted food marketing practices; however, far less research has assessed the influence of food marketing on children's health. We propose that additional impact studies are needed to advance the case for effective public health action to reduce child exposure to unhealthy food marketing. Although the IOM report also concluded that it is likely that the high volume of marketing for calorie-dense nutrient-poor foods has a negative effect on children's health (IOM, 2006), research is needed to disprove industry claims that food marketing has no impact on high rates of childhood obesity and poor diet, as well as to increase public awareness of the harm caused by food marketing.

Food industry proponents have defended child-targeted marketing practices by stating that marketing affects brand preferences (e.g., Coke over Pepsi, or McDonald's over Burger King), but that there is no evidence that it increases consumption of unhealthy product categories (Young, 2002). In addition, the food industry commonly claims that it is parents' responsibility, not theirs, to decide what products to feed children; they are just responding to consumer demand. As a result, research that demonstrates that food marketing affects consumption of categories of unhealthy products, in addition to brand preferences, and has broader impact on children's diet and food preferences is critical to counteract these claims.

Research with parents also reveals limited understanding of how food marketing affects their children. In focus groups, most parents indicated that they found food marketing targeted to their children annoying, but essentially harmless (Ustjanauskas, Eckman, Harris, Goren, Schwartz, et al., 2010). Similarly, a survey of parents indicated moderate levels of concern with unhealthy food marketing. Parents were more concerned about sexual permissiveness and materialism in the media than they were about food marketing, but less concerned about media depictions of alcohol and tobacco use (unpublished data). However, food marketing may be one of the most dangerous forms of media influence due to its breadth of influence, as well as the difficulty that individuals of all ages have in defending against its influence (Harris, Brownell, et al., 2009). Parents' support for restrictions on food marketing to children is significantly related to beliefs that food marketing has a negative impact on children's health (Goren, Harris, Schwartz, & Brownell, 2010); therefore, research that demonstrates these negative effects is likely to increase public support for actions to limit children's exposure to this harmful influence.

Longitudinal studies that track the relationship between child exposure to food advertising and diet over time will provide the most conclusive evidence of long-term food marketing effects; but this type of research is expensive and takes many years to conduct. In the shorter term, modeling using publicly available datasets and experimental studies can provide evidence of the broader effects of food marketing exposure. For example, recent studies using syndicated advertising data and public health datasets have demonstrated that soft drink and fast-food television advertising is associated with increased total consumption of soft drinks and fast food and higher BMI among elementary children (Andreyeva, Kelly, & Harris, 2011; Chou, Rashad, & Grossman, 2008). Experimental studies have also shown that exposure to television food advertising, as well as playing unhealthy food advergames, increases children's immediate consumption of any available unhealthy snack foods (Halford, Boyland, Hughes, Oliveira, & Dovey, 2007; Harris, Bargh, et al., 2009; Harris et al., 2012); and that licensed characters on snack foods increase preschoolers' perceived taste of those foods (Roberto, Baik, Harris, & Brownell, 2010). Studies such as these tend to be fairly narrow in scope and subject to other limitations. For example, cross-sectional studies cannot prove causation, and experimental studies show only short-term effects and may not replicate in real-world situations. However, when examined together, they provide increasing proof that food advertising affects much more than brand preferences. In addition, these studies tend to receive considerable media attention and thus help raise awareness among parents and the general public about the negative effects of food advertising on children's health.

Using Research to Support Public Health Action

Academic researchers are well suited to conduct the independent studies needed to measure progress in reducing children's exposure to unhealthy food marketing. Any study that criticizes the food industry is likely to be met with accusations about "food nannies" and "junk science" (American Beverage Association, 2011; JunkScience.com, 2011). Therefore, the quality of the research is critical to its effectiveness. The peer review process that academic researchers utilize provides an extra level of quality control to ensure that research methods are transparent and meet scientific standards, and that conclusions are supported by the evidence.

Unfortunately, several obstacles limit academic researchers' ability and motivation to conduct this type of research. In addition to a thick skin, researchers need the budgets and manpower to conduct food marketing studies. As discussed, they often require purchasing expensive data or commissioned studies and/or significant numbers of individuals to collect the data. However, the number of institutions funding this type of research is limited. A few food policy researchers have received funding from the National Institutes of Health, but the Robert Wood Johnson Foundation is currently the largest funder, with its commitment to spend $500 million over 5 years to combat childhood obesity (Robert Wood Johnson, 2007). In addition, academic success is measured by numbers of papers in high status scientific journals, which

may conflict with the research needs of the public health community. For example, many related academic fields, such as psychology, marketing, and economics, reward researchers who develop new theoretical models to explain human behavior; whereas, policymakers require a more "applied" approach to demonstrate outcomes from specific policy interventions or evidence of actual marketing tactics.

For those researchers who do conduct research on food marketing, we propose several steps they can take to ensure that their efforts provide the most value to the public health community. First, timely data are critical. The scientific process can take years from study proposal to academic publication; by the time the results are published, the data are no longer relevant. Researchers should consider publication in journals with faster turnaround times, such as medical journals. In cases where policymakers require the data immediately, researchers can submit commentaries, develop reports or fact sheets to be publicly available on researchers' websites, or share the data with policymakers who can use them when it is time to make their decisions. Second, researchers should use the media to raise consumer awareness about their findings and the issue, as well as to place pressure on the food industry to take action. Issuing press releases when new findings come out and being available to reporters when they are looking for comments on the issue will help establish relationships with key media. In our experience, criticism of the food industry in the media has been one of the most effective means to encourage them to take action. Finally, researchers can introduce themselves to advocates, legislators and attorneys, and maintain a dialog to identify areas in which research is most needed to set direction for future research. In addition, these discussions will help researchers understand how to communicate their findings in a way that policymakers will understand and be most useful for them.

Just as food marketers constantly seek new and innovative ways to reach children, research on food marketing to youth must be reinvented in order to compete with such a powerful entity, and ultimately, to reach consumers in a meaningful way. Traditional academic paths simply cannot spread important messages gleaned from research at a pace rapid enough or a force strong enough to be heard by consumers and policy-makers. Although the methods we have discussed are unconventional and researchers who utilize such techniques may face several obstacles to successful implementation, the possible impact that such an approach can have is tremendous.

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