

Review

Food Advertising and Marketing Directed at Children and Adolescents in the US

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Abstract

In recent years, the food and beverage industry in the US has viewed children and adolescents as a major market force. As a result, children and adolescents are now the target of intense and specialized food marketing and advertising efforts. Food marketers are interested in youth as consumers because of their spending power, their purchasing influence, and as future adult consumers. Multiple techniques and channels are used to reach youth, beginning when they are toddlers, to foster brand-building and influence food product purchase behavior. These food marketing channels include television advertising, in-school marketing, product placements, kids clubs, the Internet, toys and products with brand logos, and youth-targeted promotions, such as cross-selling and tie-ins. Foods marketed to children are predominantly high in sugar and fat, and as such are inconsistent with national dietary recommendations. The purpose of this article is to examine the food advertising and marketing channels used to target children and adolescents in the US, the impact of food advertising on eating behavior, and current regulation and policies.

Introduction

Nutrition during childhood and adolescence is essential for growth and development, health and well-being. [1,2] Further, eating behaviors established during childhood track into adulthood and contribute to long-term health and chronic disease risk. [3,4] Numerous studies have consistently documented that dietary intake patterns of American children and adolescents are poor and do not meet national dietary goals. [5-8] In addition, US food consumption trend data show a shift over the past few decades. Children and adolescents are eating more food away from home, drinking more soft drinks, and snacking more frequently. [9-11] American children now obtain over 50% of their calories from fat or added sugar (32% and 20%, respectively). [12]

The growing epidemic of childhood overweight and obesity is a major public health concern. Currently 15% of US youth are overweight, a prevalence nearly twice as high in children and three times as high in adolescents compared to 1980 prevalence rates. [13] Almost two-thirds (60%) of overweight children have at least one cardiovascular risk factor (e.g., hypertension, hyperlipidemia) [14] and the prevalence of type 2 diabetes mellitus is increasing in youth. [15] These trends may seriously compromise the future health and productivity of the US population and add to health care costs.

While multiple factors influence eating behaviors and food choices of youth, one potent force is food advertising. [16] Today's youth live in a media-saturated environment. Over the past 10 years, US children and adolescents have increasingly been targeted with intensive and

aggressive forms of food marketing and advertising practices through a range of channels. [17-22] Marketers are interested in children and adolescents as consumers because they spend billions of their own dollars annually, influence how billions more are spent through household food purchases, and are future adult consumers. [18,23] It is estimated that US adolescents spend \$140 billion a year. Children under 12 years of age spend another \$25 billion, but may influence another \$200 billion of spending per year. [23,24]

The purpose of this article is to examine the food advertising and marketing channels used to target US children and adolescents, the impact of food advertising on eating behavior of youth, and current regulation and policies. The emphasis of this article is on food advertising and marketing practices in the United States.

Food Advertising

Advertising is central to the marketing of the US food supply. Marketing is defined as an activity an organization engages in to facilitate an exchange between itself and its customers/clients. [25] Advertising is one type of marketing activity. [25] The US food system is the second largest advertiser in the American economy (the first being the automotive industry) and is a leading buyer of television, newspaper, magazine, billboard, and radio advertisements. [26] The reasons that the food advertising market is so large include the following: 1) food captures 12.5%

of US consumer spending and so there is vigorous competition, 2) food is a repeat-purchase item and consumers' views can change quickly, and 3) food is one of the most highly branded items, which lends itself to major advertising. [26] Over 80% of US grocery products are branded. [27]

Advertising expenditures for US food products were \$7.3 billion in 1999. [27] In 1997, the US advertising expenditures for various foods were: breakfast cereals – \$792 million; candy and gum – \$765 million; soft drinks – \$549 million; and snacks – \$330 million. Total expenditure for confectionery and snacks was \$1 billion. [26] In contrast, during the same year, the US Department of Agriculture spent \$333 million on nutrition education, evaluation, and demonstrations. [26] Advertising budgets for specific brands of foods, beverages, and fast food restaurants are also revealing (Table 1). It is unclear how much money is spent on food advertising specifically directed at children and adolescents, but estimates are available for overall youth-oriented advertising in the US. It is estimated that over \$1 billion is spent on media advertising to children, mostly on television. [28] In addition, over \$4.5 billion is spent on youth-targeted promotions such as premiums, sampling, coupons, contests, and sweepstakes. About \$2 billion is spent on youth-targeted public relations, such as broadcast and print publicity, event marketing, and school relations. In addition, roughly \$3 billion is spent on packaging especially designed for children. [28]

Table 1: Annual Advertising Budget for Products/Brands of Food and Beverages in the US, 2001

Product/Brand	\$\$ in Millions
<u>Beverages</u>	
Coke, Diet Coke	\$224.0
Pepsi, Mountain Dew	\$226.0
Kool-Aid	\$15.9
Dasani Bottled Water	\$26.4
Aquafina Bottled Water	\$13.2
<u>Candy</u>	
Nestle candy	\$65.0
Hershey's candy	\$55.0
M&M's candy	\$46.8
Snickers candy bars	\$46.4
Reese's candy	\$22.7
<u>Snack Chips</u>	
Frito-Lay & Frito's chips/snacks	\$24.8
Dorito's tortilla chips	\$20.9
Ruffles potato chips	\$19.3
Bugles corn snacks	\$13.4
<u>Fast Food Restaurants</u>	
McDonald's	\$635.0
Burger King	\$298.0
KFC	\$206.5
Taco Bell	\$179.4
Pizza Hut	\$148.0

Source: Advertising Age. June 24, 2002.

The heavy marketing directed towards youth, especially young children, appears to be driven largely by the desire to develop and build brand awareness/recognition, brand preference and brand loyalty. Marketers believe that brand preference begins before purchase behavior does. [28] Brand preference in children appears to be related to two major factors: 1) children's positive experiences with a brand, and 2) parents liking that brand. [28] Thus, marketers are intensifying their efforts to develop brand relationships with young consumers, beginning when they are toddlers. [29] Marketers know that toddlers and preschool children have considerable purchase influence and can successfully negotiate purchases through what marketers term the "nag factor" or "pester power". [28] A child's first request for a product occurs at about 24 months of age and 75% of the time this request occurs in a supermarket. The most requested first in-store request is breakfast cereal (47%), followed by snacks and beverages (30%) and toys (21%). Requests are often for the brand name product. [28] Isler, et al, examined the location, types, and frequency of products that children ages 3-11 requested of their mothers over 30 days. Food accounted for over half (54%) of total requests made by children and included snack/dessert foods (24%), candy (17%), cereal (7%), fast foods (4%), and fruit and vegetables (3%). [30] Almost two-thirds (65%) of all cereal requests were for presweetened cereals. Preschool children made more requests than the older elementary school children. Parents honored children's requests for food about 50% of the time, soft drinks (60%), cookies (50%), and candy (45%). [28] These findings show that food advertisers spend large amounts of money targeting children, in an attempt to build brand loyalty and to persuade them to desire a particular food product, starting when they are toddlers.

Central to any discussion on food advertising to children is the nature of children's comprehension of advertising. Numerous studies have documented that young children have little understanding of the persuasive intent of advertising. [24,31,32] Prior to age 7 or 8 years, children tend to view advertising as fun, entertaining, and unbiased information. [32] An understanding of advertising intent usually develops by the time most children are 7-8 years old. Because of their level of cognitive development, children under 8 years of age are viewed by many child development researchers as a population vulnerable to misleading advertising. [32] The heavy marketing of high fat, high sugar foods to this age group can be viewed as exploitative because young children do not understand that commercials are designed to sell products and they do not yet possess the cognitive ability to comprehend or evaluate the advertising. Preteens, from ages 8-10 years, possess the cognitive ability to process advertisements but do not necessarily do so. [24] From early adolescence (11-

12 years), children's thinking becomes more multidimensional, involving abstract as well as concrete thought. Adolescents still can be persuaded by the emotive messages of advertising, which play into their developmental concerns related to appearance, self-identity, belonging, and sexuality.

Food Advertising and Marketing Channels

Multiple channels are used to reach youth to foster brand-building and influence food product purchase behavior. Youth-oriented marketing channels and techniques include television advertising, in-school marketing, product placements, kids clubs, the Internet, toys and products with brand logos, and youth-targeted promotions, such as cross-selling and tie-ins. The channels used to market food and beverages to youth are described below.

Television advertising

The largest single source of media messages about food to children, especially younger children, is television. Over 75% of US food manufacturers' advertising budgets and 95% of US fast-food restaurant budgets are allocated to television. [26] Television viewing starts early, US children between the ages of 2 and 4 years view 2 hours of television daily; this increases to over 3.5 hours near the end of grade school, then drops off to about 2.75 hours in later adolescence. [33] US children in low-income families and minority youth tend to watch more television. [33,34] Thus they have greater exposure to food ads.

It is estimated that US children may view between 20,000 – 40,000 commercials each year [24] and by the time they graduate from high school may have been exposed to 360,000 television ads. [22] Food is the most frequently advertised product category on US children's television and food ads account for over 50% of all ads targeting children. [35-38] Children view an average of one food commercial every five minutes of television viewing time, and may see as many as three hours of food commercials each week. [36] In a descriptive study that examined US food advertising during 52.5 hours of Saturday morning children's programming, 564 food advertisements (57% of all ads) were shown. [36] On average, 11 of 19 commercials per hour were for food. Of these ads, 246 (44%) promoted food from the fats and sweets group, such as candy, soft drinks, chips, cakes, cookies and pastries. Fast-food restaurant advertising was also prevalent, comprising 11% of total food advertisements. The most frequently advertised food product was high sugar breakfast cereal. There were no advertisements for fruits or vegetables. Several other studies have documented that the foods promoted on US children's television are predominantly high in sugar and fat, with almost no references to fruits or vegetables. [35,37-43] The food advertised on US children's

Table 2: Marketing Practices Used in US Schools

Activities	Examples
Product Sales	
Food/beverage sales benefiting a district, school, or student activity	<ul style="list-style-type: none"> • Exclusionary contracts or other arrangements between school districts, or schools and bottlers to sell soft drinks in schools or on school grounds • Contracts or other arrangements between districts or schools and fast food companies to sell food in schools or on school grounds • Programs that award cash or equipment to schools in proportion to the value of store receipts or coupons collected by the schools (e.g., cereal box tops, food product labels) • Short-term sales of candy, pizza, cookie dough, etc. by parents, students, or both to benefit a specific student population or club
Branded fast food	
Cash or credit rebate programs	
Fundraising activities	
Direct Advertising	
Advertising in schools, in school facilities, an on school buses	<ul style="list-style-type: none"> • Billboards and signs in school corridors, sports facilities, or buses • Product displays • Corporate logos or brand names on school equipment, such as marquees, message boards, scoreboards, and backboards • Ads, corporate logos, or brand names on posters, book covers, and student assignment books • Ads in sports programs, yearbooks, school newspapers, and school calendars • Televised ads aired by Channel One or commercial stations • Screen-saver ads, corporate logos or brandnames on computers • Free snack food or beverages
Advertisements in school publications	
Media-based advertising	
Samples	
Indirect Advertising	
Corporate-sponsored educational materials	<ul style="list-style-type: none"> • Teaching materials and nutrition education kits from food corporations that incorporate the sponsor's products or promote the sponsor's brand • Nutrition information produced by trade associations (e.g., dairy, meat, egg, sugar association) • Pizza Hut's Book-It program, McDonald's McSpellIt Club • Corporate gifts to schools that generate commercial benefits to the donor
Corporate-sponsored contests and incentives	
Corporate grants or gifts	
Market Research	
Surveys or polls	<ul style="list-style-type: none"> • Student questionnaires or taste tests • Use of the Internet to poll students' responses to computer-delivered questions • Tracking students' Internet behavior and responses to questions at one or more websites
Internet panels	
Internet tracking	

Adapted from: US General Accounting Office. Commercial Activities in Schools, 2000.

television programming is inconsistent with healthy eating recommendations for children.

An international comparative survey of television advertising aimed at children was recently conducted by Consumers International, a non-profit organization consisting of a federation of consumer organizations. [40] Television advertisements were monitored during approximately 20 hours of children's programming in 13 countries during a 3-month period in 1996. The 13 countries included Australia, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Netherlands, Norway, Sweden, United Kingdom and the USA. The findings showed that Australia, US and UK had the most food advertisements, between 10 and 12 an hour or about 200 in a 20 hour period. This was twice as many advertisements as in Denmark, Germany and France, and between 6 to 10 times more than in Austria, Belgium and Sweden. The least

amount of food advertising was in Sweden, which had almost no food advertisements (<1 ad/hour). Food products comprised the largest category of all advertisements to children in virtually all countries. In two-thirds of all countries food advertisements accounted for more than 40% of total advertisements. Confectionery, breakfast cereals (mainly sweetened), and fast food restaurants accounted for over half of all food advertisements. Confectionery was the largest category accounting for nearly a fifth of all food advertising. A nutritional analysis conducted for the advertised foods in the UK found that 95% of the ads were for foods that were high in fat (62%), sugar (50%) or salt (61%). [40] The results from this study indicate that the advertising of high fat/high sugar foods to children is an international issue.

In-school marketing

During the past decade in the US, use of public schools as advertising and marketing venues has grown. Reasons for the increase in in-school marketing to children and adolescents include the desire to increase sales and generate product loyalty, the ability to reach large numbers of children and adolescents in a contained setting, and the financial vulnerability of schools due to chronic funding shortages. [19,44] In-school commercial activities related to food and beverages include 1) product sales; 2) direct advertising; 3) indirect advertising; and 4) market research with students. [45,46] Examples of these four types of marketing practices used in schools are shown in Table 2.

In a recent report by the US General Accounting Office (GAO), food sales were reported to be the most prevalent form of commercial activity in schools. [46] Food sales involved primarily the sale of soft drinks from vending machines and short-term fundraising sales. The US national School Health Policies and Programs Study 2000 (SHPPS) found that students could purchase soft drinks, sports drinks, or fruit drinks that are not 100% juice in a vending machine, school store, or snack bar in 58% of elementary schools, 83% of middle schools, and 94% of high schools. [47] In a recent survey of 336 secondary school principals in Minnesota, US, 98% of the school principals reported that soft drink vending machines were available to students, and 77% of the schools had a contract with a soft drink company. [48] The GAO report found that the sale of soft drinks by schools or districts under exclusive contracts is the fastest growing activity of all product sales. [46] Nationally in the US, more than one-third of elementary schools, half of middle/junior high schools, and almost three-fourths of senior high schools have a contract that gives a company rights to sell soft drinks at schools. Most (92%) of these schools receive a specified percentage of the soft drink sales revenues and about 40% receive incentives such as cash awards or donated equipment once revenues total a specified amount. [47] The contract terms vary greatly, but many are highly lucrative. For example, a beverage contract with one US school district has the potential to generate up to \$1.5 million per year. [46] Contracts may also specify advertising of their products. SHPPS found that in 35% of school districts with soft drink contracts, the company is allowed to directly advertise in the school buildings; 43% allow ads to be placed on school grounds, outside of school buildings, or on playing fields. [47]

There is also a growing trend of fast food vendors in schools. About 20% of US high schools offer brand-name fast foods, such as Pizza Hut, Taco Bell, or Subway. [47] The results from the 2000 California High School Fast Food Survey conducted in 171 US school districts with 345 public high schools found that 24% of districts with

a fast food or beverage contract gave exclusive advertising promotion rights to that company, including placement of the company's name and logo on school equipment and facilities. [49] Only 13% of the districts did not allow advertising on campus.

There are many types of direct advertising in schools, such as soft drink, fast food, or snack food corporate logos on athletic scoreboards, sponsorship banners in gyms, ads in school newspapers and yearbooks, free textbook covers with ads, and screen-saver ads on school computers for branded foods and beverages. The US GAO report found that the most visible and prevalent types of direct advertising in schools were soft drink advertisements and corporate names and logos on scoreboards. [46] Recently, food marketing to youth in schools has become even more intense, persuasive, and creative. Some schools are now selling food advertising space on their athletes' warm-up suits, as well as inside and outside of school buses. A large multinational food company tested an advertising campaign in 2001 that paid ten elementary school teachers in Minneapolis, MN, US to drive cars to school that advertised Reese's Puffs, a sweetened cereal. [50] The cars were wrapped with a vinyl ad and teachers earned a \$250 monthly stipend for their efforts as "freelance brand managers." The campaign was to last from early August through the first month of classes in September but was canceled after 3 weeks due to public protest. [50]

Food advertisements can also be delivered through in-school media. About 12,000 schools or about 38% of middle and high schools in the US are connected to Channel One, the 12-minute current events program that carries two minutes of commercials including advertisements for soft drinks and high fat snack foods. [46] Schools receive free video equipment in exchange for mandatory showing of the program in classrooms. Brand and Greenberg evaluated the effects of Channel One in-school advertising on high school students' purchasing attitudes, intentions, and behaviors. About 70% of the 45 food commercials shown on Channel One during one month were for food products including fast foods, soft drinks, chips and candy. In schools where Channel One was viewed, students had more positive attitudes about the advertised products, and were more likely to report intentions to purchase these products compared to students who did not have Channel One in their classrooms. However, students who watched Channel One did not report more frequent purchases of the advertised products compared with students in schools that did not show Channel One. [51]

In the last 10 years, US marketing companies have developed strategies that focus exclusively on schools. For example, a US marketing company, Cover Concepts, dis-

Table 3: Examples of Food Corporation Websites in the US Geared to Children and Adolescents

Food Company	Example of Web Site Content*
BURGER KING http://www.burgerking.com	Games, toys, tunes, and other downloads are promoted along side their food items. There is a special <i>Big Kids Club</i> link on the home page where 4–12 year olds are encouraged to become club members.
CAP'N CRUNCH http://www.captaincrunch.com	Downloadable Cap'n Crunch commercials, screen savers, desktop wallpaper, and cursor icons. An ad for free Air Head candy in specially marked boxes of Cap'n Crunch appears on the corner of most pages of the site.
DUBBLE BUBBLE GUM http://www.dubblebubble.com	Animated site includes games (<i>Gum Ball Drop</i> , <i>Pud's Gum Factory</i> , <i>Bubble Breakout</i>) contests, cartoons, e-cards, and a virtual tour of a bubble gum or gumball factory.
FRITO-LAY http://www.fritolay.com	Homepage displays logos of all of this corporation's food products. Each logo links to individual product's homepage (i.e., Doritos, Cheetos, Cracker Jack, Fritos, etc.) These websites contain flashing icons and banners, music, games, e-cards, and special offers featuring the products and/or its characters, (i.e., Chester Cheeto, the hip animated character that advertises Cheetos).
GENERAL MILLS http://www.youruleschool.com	<i>You Rule School</i> is the kids' link for this site and features the Trix rabbit and the Lucky Charms leprechaun leading kids through the <i>Homework Free Zone</i> schoolhouse of games and activities for kids.
HERSHEY'S http://www.kidztown.com	Kids' link from Hershey's homepage that welcomes viewers to the "sweetest place on the web." There are animated games all promoting the company's brands, i.e., <i>Milk Duds Trivia</i> , <i>Hershey's Syrup Flavor Farm</i> , <i>Twizzlers Slider Puzzle</i> , <i>Hershey's Kisses Way to Go</i> , and recipes using Hershey's candy.
KEEBLER http://www.thehollowtree.com	Many games and activities all featuring elves and the company's food products. Kids can meet the individual elves and also send an electronic "elfin greeting card" to friends. Throughout the website, there is e-billboard with ads for Keebler cookies and snacks.
KELLOGGS http://www.kelloggs.com	Homepage includes a link to <i>Save Our Apple Jacks</i> , an interactive page aimed at kids to tell them that the taste of Apple Jacks will not be changed: "Great news, NO apple taste" is the slogan. There is also an interactive Frosted Flakes Hockey Game that kids can play with Tony the Tiger, replete with the sound of a cheering crowd.
KENTUCKY FRIED CHICKEN (KFC) http://www.kfc.com	Kids' link features photos of the KFC latest "laptop" meal available at KFC and a link where kids can send an e-card with a photo of a KFC entrée.
KOOLAID, KRAFT, OSCAR MAYER, POST http://www.toomunchfun.com	Site co-sponsored by KoolAid, Kraft Macaroni and Cheese, Oscar Mayer Lunchables, and Post cereals. Children can look at child-g geared food logos in a number of fun activities. Many games, the pieces of which involve one of the sponsored products. For example, there is <i>Quest for Cheese</i> (Kraft Mac 'n Cheese), <i>Lunchables Playground Panic</i> , <i>Honeycomb Craver Course</i> , <i>Fruity Pebbles Bumper Pool</i> . Puzzles and quizzes include <i>AlphaBits Word Wizard</i> and <i>KoolAid Maze Craze</i> .
LIFESAVERS http://www.candystand.com	Links at the top of the website provide a variety of games: 15 arcade games, 20 sports games, 8 action "extreme" sports games, 11 card games/puzzles, 3 trivia games, 6 multiplayer sports games, and a list of 5 prizes you could win if you play certain games that advertise Lifesavers, including the game pieces.
M&M's http://www.mms.com	All games actively involve the M&M's characters and promote its candy. Downloads include M&M desktop wallpaper, icons, sounds, stationery, and autographed pictures. E-cards of characters can be sent from this site. In the Colorworks section, you can play a melody on a keyboard of colorful M&M's and order special M&M's color combinations of your school's colors.
McDONALD'S http://www.mcdonalds.com	Main page links to Ronald.com with the slogan "You found the Internet's land for fun. Ronald.com!" There are many games, puzzles, quizzes, and coloring pages all with Ronald McDonald and other McDonald's characters, as well as the food entrées available at the restaurant.

Table 3: Examples of Food Corporation Websites in the US Geared to Children and Adolescents (Continued)

MOUNTAIN DEW http://www.mountaindew.com	Games and downloads of desktop wallpaper, screensavers, as well as current ads and promotions. You can register to receive a regular newsletter and e-mails of the latest offers or rewards promoted by the company.
NABISCO http://www.nabiscoworld.com	Animated links to 17 arcade games, 16 sports games, 6 card games, and 13 puzzles. Nabisco snacks (i.e., Chips Ahoy and Oreo cookies, Ritz crackers, Cheese Nips, etc.) are prominently displayed and are animated in every game and puzzle.
OSCAR MAYER http://www.oscarmayer.com	Homepage features links to several interactive sites including <i>Family Fun Park</i> which includes many games, i.e. <i>Create Lunchables: Design your own fun with toppings</i> and <i>You're Full of Bologna Trivia</i> .
POST http://www.postopia.com	Postopia Party is an animated site including many different games, all featuring or promoting Post's sweetened cereals, Honeycomb, Pebbles, Alphabits, Golden Crisp, Oreo O's, Honey Comb.
SNICKERS http://www.snickers.com	"Don't let hunger happen to you" is the slogan of this web site. Games (i.e., <i>Hunger Attack</i>), jokes, videos, and e-cards all feature and promote Snicker bars.
SUNNY DELIGHT http://www.sunnyd.com	Loud, animated site where viewers can visit Sunny Spots to download commercials or go to <i>D-Cards</i> to send e-cards to friends.
TWINKIES http://www.twinkies.com	"Destination Planet Twinkie." The main page has links to Hall of Fame (gives biographies of hostess characters, including Twinkie the Kid, Happy Ho Ho and King Ding Dong), <i>E-card Express</i> that lets viewers send birthday or post cards that feature the Twinkies characters and products.

* The content on the websites changes frequently

tributes textbook covers, lesson plans, posters, book-marks, sampling programs, specialty paks, and lunch menu posters to participating companies. These products are branded with the company's name or corporate logo and then distributed free to students and schools. Cover Concepts' promotional materials state: "Cover Concepts places your brand directly into the hands of kids and teens in a clutter-free environment. We work in tandem with school administrators to distribute free, advertiser-sponsored materials to over 30 million students – grades K-12 – in 43,000 authorized schools nationwide, plus additional reach in daycare centers throughout the country." A list of advertisers for Cover Concepts includes McDonalds, Pepsi, Gatorade, Frito Lay, General Mills, Hershey, Keebler, Kellogg's, M&M's, Mars, Kraft/Nabisco, Wrigley and State Fair Corn Dogs. [52]

Indirect advertising includes corporate-sponsored educational materials and corporate-sponsored incentives and contests. Many US elementary school programs promote a reading incentive program that rewards students with a free pizza for reading a required number of books. When students reach their reading goal they are given a certificate for a free pizza. [46] McDonald's McSpellit Club rewards perfect scores on spelling tests with coupons for free hamburgers, cheeseburgers, or Chicken McNuggets.

[44] Local McDonald's restaurants provide schools with coupons redeemable for french fries and soft drinks. [44] Food industry-sponsored classroom nutrition education materials are widely available. [19] Examples include the Campbell's *Prego Thickness Experiment*, Domino's *Pizza's Encounter Math: Count on Dominos*, and the National Potato Board *Count Your Chips*.

Product placements

Product placement is increasing in popularity and becoming more acceptable as a standard marketing channel. It typically involves incorporating brands in movies in return for money or promotional support. Fees are variable depending on the relative prominence of the placement in movies, and are usually around \$50,000 to \$100,000. [53] The product placement may be placed as a backdrop "prop" or may be an integral part of the script. Producers contend that product placement makes sets look more realistic and that brands help define characters and settings. In addition, product placement can help offset production costs. Product placement in the movies first gained attention in 1982 when it was reported that sales of the peanut butter candy Hershey's Reese's Pieces increased by 65% within a month due to its placement within *E.T., The Extra Terrestrial*. [53] It is reported that

Table 4: Examples of toys with food brand logos in the US

<p>Play-Doh (Hasbro)</p> <ul style="list-style-type: none"> • Play-Doh Little Debbie snack Cake Kitchen Kit includes Play-Doh, an oven/cookie table, mold trays to make five kinds of snack cakes, creme/chocolate extruder. • Play-Doh Chuck E. Cheese Pizza Playset Kit includes mold to make pretend Chuck E. Cheese pizzas. • Play-Doh Lunchables Playset • Play-Doh McDonaldland Happy Meal Playshop Makes a pretend Happy Meal with hamburger, fires, shake and toys. Comes with Happy Meal box.
<p>Barbie Dolls (Mattel)</p> <ul style="list-style-type: none"> • Jello Barbie Barbie wears a t-shirt with "Jello" written on it. Set comes with Jello and mold for making Barbie's pink Jello. • McDonald's Barbie Barbie is dressed in a McDonald's clerk outfit. She has a tray of French fries, hamburger, soft drinks. Comes with Barbie's little sister Kelly who has a Happy Meal. • Little Debbi Barbie Barbie is dressed to go shopping. In her Little Debbie shopping bag are authentic miniature boxes of Little Debbie snack cakes. • Coca-Cola Majorette Barbie
<p>McDonald's Play Sets (Creative Design)</p> <ul style="list-style-type: none"> • McDonald's Food Cart with Play Food Features a cart and drive-through window with a play cash register, grill, deep fryer, and McFlurry machine. 30 food accessories including burgers, fries, Chicken McNuggets, pies, soft drinks. • McDonald's Deluxe Mealtime Set • McDonald's Fast Food Center
<p>Easy-Bake Sets (Hasbro)</p> <ul style="list-style-type: none"> • Easy-Bake Chips Ahoy Cake Bake Set • Easy-Bake Oreo cakes Bake Set • Easy-Bake Pop Tarts Snack • Easy-Bake Pizza Hut Menu • Easy-Bake M&M's Cookies Bake Set • Easy-Bake Kellogg's Tony the Tiger Cakes Mini Bake Set <p>Fisher-Price Oreo Matchin' Middles Game (Fisher Price) A matching game for young children to learn shapes with plastic real looking oreo cookies that pull apart to reveal shapes.</p> <p>Teddy Grahams Game (Mattel)</p>

placement is being used more in radio, music videos, books, comic strips, plays, and songs [53] and that product placement agencies are increasing in number. [54]

Kids' clubs

Several corporations have developed branded kids clubs as a way to communicate with and maintain an ongoing relationship with children. The name is a misnomer in that many kids clubs aren't really clubs, but standard marketing programs with names that imply they are clubs. [28] Kids clubs permit mass marketing on a personalized basis and club members may receive direct mailing such as membership cards, birthday cards, holiday greetings, and newsletters. In addition they can participate in con-

tests, receive coupons and branded items such as posters, screensavers, and discounts for items with the club's logo. [28] Some examples of kids clubs from corporations include Burger King, Nickelodeon, Fox, Sega, and Disney. The Burger King Kids Club has more than 5 million members. [28]

Internet

Online media play an increasingly significant role in the lives of US children and teenagers. US Census data indicate that between 1998 and 2001 the proportion of US adolescents (ages 14–17 years) using the Internet increased from 51% to 75% and the proportion of US children (ages 10–13 years) online increased from 39% to

65%. [55] Families with children represent one of the fastest growing segments of the population using the Internet. [56] US Census data from 2001 indicate that half (51%) of US children 10–13 years old and 61% of those 14–17 years old have Internet access at home.

Advertisers and marketers have begun to target the rapidly growing number of US children online with a variety of new interactive advertising and marketing techniques. [57] The forms of advertising and marketing on the Web differ significantly from television commercials. Utilizing the unique features of the Internet, companies can seamlessly integrate advertising and Web site content. [58] Almost all of the major companies that advertise and market to children have created their own websites, designed as "branded environments" for children. [56,58] This electronic advertising "environment" and on-line infomercials is evident with food companies, which offer multiple entertaining, animated and interactive areas developed specifically for preschoolers and children around their food products. These sites include games, word-find puzzles, contests, quizzes, riddles, music, e-mail cards, clips of commercials, sweepstakes, downloadable recipes, desktop wallpaper and screensavers that feature their products, and on-line stores that sell licensed merchandise. Children can also sign up to receive electronic newsletters with news about products and promotions. The sites often feature popular product spokes-characters and animated cartoon characters, such as Tony the Tiger, Chester Cheetah, Toucan Sam, and Snap! Crackle! And Pop! The integration of products into games is commonplace. The company's website is frequently featured on ads or product packaging. Examples of food branded environments for children on food company websites are shown in Table 3.

In addition to food company sites, there are also several other commercial sites that advertise food products to children. Internet sites aimed at preschoolers have proliferated in recent years. [59] Popular sites include Disney.com, NickJr.com from cable television network and Nickelodeon, and FoxKids.com from the Fox Kids cable channel. All of these websites are supported by advertising. It is reported that more than two-thirds of all Internet sites designed for children and adolescents use advertising as their primary revenue stream. [60] Content analyses studies to document television food advertising have not yet been conducted with the Internet sites oriented to children. Due to criticisms from consumer advocacy groups, many children's websites and food company web pages for children now put "ad bugs" or the word "advertisement" next to a sponsor's hotlink. [58] However, these can be easily missed, especially by young children.

Toys and products with brand logos

There has been a recent trend among food companies to market toys and products with brand logos to preschoolers and young children to develop an early and positive relationship with the child and thereby promote brand awareness and preference. The food industry has partnered with toy manufacturers to create toys that advertise food. General Mills last year partnered with Target stores to create a line of children's loungewear based on iconic cereal brands like Trix and Lucky Charms. [61] The M&M's candy company offers a catalog of items including toys and clothing. Examples of toys with brand logos are shown in Table 4.

Several companies sell counting and reading books for preschoolers and young children for brand-name foods. For example, *Kellogg's Foot Loops! Counting Fun Book*, *The M&M's Brand Counting Book*, and the *Oreo Cookie Counting Book*. There are numerous math books for children such as *Reese's Math Fun: Addition 1 to 9*, *Skittles Riddles Math*, and the *Hershey's Kisses Addition Book*. On the Amazon.com website there are over 40 children's brand food name counting and reading books available for purchase (see Table 5). These books are being promoted as teaching tools but are clever advertising ploys.

Youth-targeted Promotions

Promotions are a commonly used marketing method for reaching children and adolescents and include cross-selling, tie-ins, premiums, and sweepstakes prizes. Cross-selling and tie-ins combine promotional efforts to sell a product. In the US, the food industry has forged promotional links with Hollywood and Network studios, toy companies, and sports leagues. Burger King has formed a linkage with Nickelodeon, and McDonald's with the Fox Kids Network. Burger King has sold chicken nuggets shaped like Teletubbies. [62] Disney has launched cross-selling campaigns and tie-ins worth millions of dollars to promote its films and characters. In 1996, Disney signed a ten-year global marketing agreement with McDonald's. [62] In 2001, Coca-Cola and Disney partnered to build Disney character-branded children's beverages. Kellogg's also has an agreement with Disney to extend the Disney characters to cereals, Keebler cookies and Eggo waffles. [63] McDonald's has formed partnerships with the National Basketball Association. Pizza Hut, Taco Bell and Wendy's have linked with the National Collegiate Athletic Association.

Premiums and sweepstakes prizes have increased recently [64] and are often used to appeal to children's and adolescent's tastes and desires. [17] Premiums provide something free with a purchase, whereas sweepstakes and contests promise opportunities to win free products. [28] Fast food restaurants typically use premiums in children's

Table 5: Examples of Food Branded Reading and Counting Books for Preschoolers and Young Children in the US

Hershey's®
<i>Hershey's Kisses: Counting Board Book; The Hershey's Kisses Addition Book; The Hershey's Kisses Subtraction Book; The Hershey's Milk Chocolate Multiplication Book; The Hershey's Milk Chocolate Bar Fractions Book; Hershey Milk Chocolate Weights and Measures</i>
M&M's®
<i>The M&M's Brand Chocolate Candies Counting Board Book; The M&M's Brand Counting Book; More M&M's Brand Chocolate Candies Math; The M&M's Brand Count to One Hundred Book; The M&M's Brand Color Pattern Book; The M&M's Brand Birthday Book; The M&M's Brand Easter Egg Hunt; The M&M's All-American Parade Book; The M&M's Halloween Treat Book; The M&M's Brand Valentine Book; The M&M's Thanksgiving Feast; The M&M's Christmas Gift Book</i>
Kellogg's® Froot Loops!®
<i>Kellogg's Froot Loops! Counting Fun Book; Kellogg's Froot Loops! Color Fun Book;</i>
Reese's Pieces® Candies
<i>Reese's Pieces Peanut Butter: Counting Board Book; Reese's Pieces Math Fun: Addition 1 to 9; Reese's Pieces Count by Fives</i>
Cheerios®
<i>The Cheerios Counting Book: 1, 2, 3; The Cheerios Play Book; The Cheerios Animal Play Book; The Cheerios Halloween Play Book: Fill in the Missing Cheerios; The Cheerios Christmas Play Book</i>
Necco®
<i>Necco Sweethearts Be My Valentine Book; Have a Heart: Book of Friendship (Necco Sweethearts); Math Magic (Necco Sweethearts); Christmas Buttons (Necco Candy Button Series); Easter Buttons (Necco Candy Button Series)</i>
Twizzlers®
<i>Twizzlers: Shapes and Patterns; Twizzlers Percentages Book</i>
Pepperidge Farms® Goldfish® Crackers
<i>Pepperidge Farm Goldfish Counting Board Book; Pepperidge Farm Goldfish Counting Fun Book; Pepperidge Farm Goldfish Fun Book</i>
Others
<i>Oreos Cookies Counting Book; Skittles Riddles Math; Sun Maid Raisins Play Book</i>
Source: Amazon.com << http://www.amazon.com/exec/obidos/tg/guides/guide-display_2003 >>

meals, giving away simple toys. Sweetened cereals also commonly give premiums in the form of toys, cards or games. Premiums can increase short-term sales since children may desire the item over the food, but they also can help elevate the image of that brand in children's minds. [28] In one study in which preschool and school-age children and parents were unobtrusively observed while grocery shopping, almost half of the children who made cereal purchase requests were influenced by premium offers. [65]

The Influence of Food Advertising on Children's Food Preferences and Eating Behavior

Of critical importance is whether youth-targeted marketing and advertising of food products has any impact on children's food behaviors or body weight. Almost all of the studies on the impact of food advertising on children's food preferences and behaviors were conducted in the mid 1970s and the 1980s. These studies focused on the relationship between children's exposure to television advertising and their food preferences, food choices, food intake or purchase requests. A recent review [37] on the

effects of television food advertising on preschool and school-age children's food behavior concluded that: 1) studies of food preferences using experimental designs have consistently shown that children exposed to advertising will choose advertised food products at significantly higher rates than children who were not exposed; 2) findings from food purchase request studies based on surveys, diaries, experimental trials, and direct observation of mother-child pairs shopping have consistently shown that children's exposure to food television advertising increases the number of attempts children make to influence food purchases their parents buy; 3) purchase requests for specific brands or categories of food products also reflect product advertising frequencies; and 4) fewer studies have been conducted on food advertising effects on actual food intake, in part due to difficulty in controlling children's exposure to advertising or to foods outside experimental settings. [37]

A variety of study designs have been used to study the effects of food advertising on children's food behavior and food preferences but most are field experiments or survey research/ cross-sectional correlational studies. A strength of correlational studies is that external validity can be high given the broad range of potential influences that can be studied. A major weakness is that causality cannot be established. Longitudinal studies that prospectively link exposure to food advertising to children's food intake or behavior have not been done. There also have not been any meta-analyses review studies conducted in which effect-size estimates from multiple studies are combined. Further, the studies to date have focused almost exclusively on television food advertising. However, considering all the evidence to date, the weight of the scientific studies suggests that television food advertising is associated with more favorable attitudes, preferences and behaviors towards the advertised product. [37,66] The research evidence is strong showing that preschoolers and grade school children's food preferences and food purchase requests for high sugar and high fat foods are influenced by television exposure to food advertising. [30,37,66-68] Only a few studies have been done on food advertising and the effects on children's actual food intake. [69,70] Gorn and Goldberg [69] conducted a novel, well-designed experimental field study which randomly assigned children ages 5–8 years old attending a summer camp to one of four conditions to examine television exposure of snack food commercials to actual food consumption. Daily for two weeks, children watched 30 minutes of a television cartoon with about 5 minutes of advertising embedded. The four experimental conditions differed in the type of food advertising included with the cartoon: ads for candy and Kool-Aid; ads for fruit and fruit juice; control (no ads); and public service ad announcements for healthy foods. Each day after the television

exposure, the children were given a selection of fruits, juices, candy, or Kool-Aid to choose to eat. Children in the candy/Kool-Aid commercials condition selected the most candy/Kool-Aid and the least fruit and juice. For example, those in the candy commercial condition selected significantly less fruit (25%) than those in the fruit commercial condition (45%).

A new WHO/FAO consultation report on diet and prevention of chronic diseases examined the strength of evidence linking dietary and lifestyle factors to the risk of developing obesity. [71] Diet and lifestyle factors were categorized based on the strength of scientific evidence according to four levels of evidence: convincing, probable, possible and insufficient. The report concluded that while the evidence that the heavy marketing of fast food outlets and energy-dense, micronutrient-poor food and beverages to children causes obesity is equivocal, sufficient indirect evidence exists to place this practice in the "probable" category for increasing risk of obesity. [71] For comparative purposes, other factors placed in the "probable" category were: high intake of sugar-sweetened soft drinks and fruit juices; and adverse socioeconomic conditions (in developed countries, especially for women). Clearly, additional research is needed to examine possible links between exposure to food ads, food consumption patterns and obesity.

Regulations on Advertising to Children

It is evident that food advertising targeting children is well-funded and saturates their environment from multiple channels. Furthermore, much of the non-television advertising, such as the food companies' web sites, toys, in-school marketing, is indirect and subtle (e.g., is it a toy or an ad?). Finally, available evidence suggests that food ads on television have an influence on children's food choices. As children have become an increasingly important target market for the food industry, consumer and child advocate organizations have become increasingly concerned that adequate safeguards exist to protect children from exploitative commercial gain. [72-74] Concerns over the effects of advertising to children have raised issues about the need for tighter controls on food advertising to children. This section reviews US regulations related to food advertising to children.

In the US, there are currently few policies or standards for food advertising and marketing aimed at children. The advertising industry maintains self-regulatory policies established by the Children's Advertising Review Unit (CARU) of the National Council of Better Business Bureaus. [75] CARU's guidelines apply to all forms of children's advertising, but it has no legal authority over advertisers and can only seek voluntary compliance. CARU has a group of about 20 advisors and 35 supporters, many of

Table 6: Chronology of Key Events in US Regulations on Advertising to Children

1961	National Association of Broadcasters' first adopted self-regulatory toy TV advertising guidelines.
Early 1970s	Action for Children's Television (ACT), a children's advocacy group calls on FCC and FTC to prohibit or limit TV advertising directed at children.
1974	FCC adopts first federal policies restricting TV advertising. These include: 1. limits on overall amount of advertising allowed during children's programming (12 min/hr on weekdays and 9.5 min/hr on weekends) 2. clear separation between program content and commercial messages (no host selling) 3. clear delineation when a program is interrupted by a commercial Children's Advertising Review Unit (CARU) of the National Council of Better Business Bureau's is established by the advertising industry to self-regulate advertising policies. The group was created in response to legislation to restrict or ban advertising to children.
1977	ACT ad the Center for Science in the public interest (CSPI) file petitions to FTC to ban TV advertising of highly sugared products.
1978	FTC formally proposes a rule that would ban or severely restrict all TV advertising to children. FTC presents a review of the scientific evidence and argues that all advertising directed to young children is inherently unfair and deceptive. The proposal provokes intense opposition from the broadcasting, advertising and food and toy industries and an aggressive campaign to oppose the ban based on First Amendment Protection.
1980	In response to corporate pressure, Congress refuses to approve FTC's operating budget and passed legislation "FTC Improvements Act of 1980" which removes the agency's authority to restrict advertising. The Act prohibits any further action to adopt proposed children's advertising rules.
1984	Deregulation of Television occurs during the Reagan administration. FCC deregulates all limits on the amount of advertising times, and the restriction on program-length commercials.
1990	Children's advocacy and consumer groups pushed Congress to pass the Children's Television Act which directed the FCC to require educational programming for children and to limit the amount of commercial time during children's programming to 10.5 min/hr on weekends and 12 min/hr on weekdays. FCC reinstates the policy on program length commercials but redefines them.
1998	In response to advocacy groups and an FTC report, Congress passes the Children's Online Privacy Protection Act (COPPA) that directs the FTC to develop rules restricting certain data collection practices and requiring parental permission for collection of personal information for children under 13 years of age.

whom are from the food industry, such as Burger King, Frito-Lay, McDonald's, General Mills, Nabisco and Hershey. The CARU voluntary guidelines list seven basic principles, which address areas such as product presentation and claims, endorsement and promotion by program characters, sales pressures, disclosures and disclaimers and safety concerns. [75] It is questionable how well an organization like CARU, comprised primarily of interested food marketers, can self-regulate the food advertising behavior of its members.

At a federal level, the Federal Communications Commission (FCC) and the Federal Trade Commission (FTC) share authority for regulating advertising, although each agency has a different emphasis. [31] The FCC has the responsibility of establishing public interest obligations for television broadcasters, while FTC's responsibility is to regulate advertising deemed unfair or deceptive. [31]

Television

Concerns about advertising on children's television were first raised in the early 1970s by the children's advocacy group, Action for Children's Television (ACT) which urged the FCC and the FTC to prohibit or limit advertising directed at children. [76] In 1974, the FCC required specific limitations on the overall amount of advertising allowed during children's programs (12 minutes/hour on weekdays and 9.5 minutes/hour on weekends) and clear separation between program content and commercial messages. This involved policies against "host selling," the use of a program host or other program personality to promote products on the program. [31] The FCC also required clear delineation when a program is interrupted by a commercial to help young children distinguish program content from commercial messages. As a result it became common for television stations to air "bumpers,"

such as "We'll be right back after these commercial messages". [77]

In 1978, the FTC formally proposed a rule that would ban or severely restrict all television advertising to children. [31,78] The FTC presented a comprehensive review of the scientific literature and argued that all advertising directed to young children was inherently unfair and deceptive. [31] The proposal provoked intense opposition from the food, toy, broadcasting and advertising industries, who initiated an aggressive campaign to oppose the ban. A key argument was First Amendment protection for the right to provide information about products to consumers. [31] Responding to corporate pressure, Congress refused to approve the FTC's operating budget and passed legislation titled the FTC Improvements Act of 1980 that removed the agency's authority to restrict television advertising. The act specifically prohibited any further action to adopt the proposed children's advertising rules. [31]

In 1990, children's advocacy groups persuaded Congress to pass the Children's Television Act that included limiting the amount of commercial time during children's programming to 10.5 minutes per hour on weekends and 12 minutes per hour on weekdays. These time limits remain in effect today. A chronology of key events in the regulation of food advertising to children is shown in Table 6.

Internet

Advertising and marketing aimed at children is rapidly becoming a pervasive presence on the Internet, with new techniques constantly being developed, yet advertising on the Web is virtually unrestricted. [57] Advertising and content for children are often seamlessly interwoven in online "infomercials," interactive forms of product placement, and branded environments on food company websites. In 1997, CARU revised its Children's Advertising Guidelines to include a new section addressing the Internet. [75] However, the CARU guidelines regarding online and Internet advertising are considerably weaker than those applied to television. For example, one of CARU's guidelines for television is that products derived from or associated with program content primarily directed to children should not be advertised during or adjacent to that program. Yet, this does not apply to websites or the Internet.

In the mid 1990s, children's media advocacy groups documented a number of exploitative data collection marketing practices on children's websites used to gather personal information from children and learn about their preferences and interests. These included interactive surveys with animated characters or spokespersons, guest books, registrations, incentives, contests, and prizes for filling out surveys. This information permitted companies

to conduct market research which then could be used to and create personalized marketing and sales appeals to children. [57,77] In 1998, Congress passed the Children's Online Privacy Protection Act (COPPA), which directed the FTC to develop rules restricting certain data collection practices and requiring parental permission for collection of personal information for children under 13. [58] This law went into effect in 2000.

Schools

The majority of US schools and states do not have any policies about commercial marketing activities in schools. The US GAO report found that only 19 states currently have statutes or regulations that address school-related commercial activities. [46] This includes some state statutes to encourage commercial activities (e.g., New Mexico's only statute allows advertising in and on school buses). Only five states were reported to have more comprehensive policies covering various activities related to product sales, and direct or indirect advertising. [46] New York and California have adopted laws prohibiting or restricting many types of commercial promotional activities in public schools. [77] In most states, local school boards have the authority to make policy decisions about commercial activities. [46]

Several national organizations and youth advocacy groups are concerned about the growing influx of in-school marketing and advertising and have advocated limiting commercial activities in schools, arguing that children's health is not an acceptable "trade off" for increased revenues. [19,44] The Consumers Union Education has urged that parents and educators unite to make schools ad-free zones, where young people can pursue learning free of commercial influences and pressures. [19]

Recently, there have been successful local initiatives to eliminate soft drink vending machines and advertising from schools. Several school districts across the country have refused to enter into agreements with soft drink companies after protests by parents, students and school officials. [79] In 2002, Oakland, California school district banned all school sales of soda and candy. The same year, the Los Angeles unified school district, which includes 677 schools and 736,000 students, voted to ban the sales of soft drinks in vending machines. [79] These initiatives demonstrate the effectiveness of local efforts to regulate commercial activities in schools.

Regulations in Other Countries

Concerns about the effects of television advertising on children are shared by a number of European countries and Australia. [19,74,80,81] The Nordic countries are at the forefront of protecting children from the effects of advertising. [74] Sweden has the strictest controls in

Europe and in 1991 instituted a ban on television and radio advertising targeted at children under the age of 12. [74] The Swedish government views advertising to children as morally and ethically unacceptable, since children have difficulty distinguishing between the purpose of advertising and other modes of communication. [74] In Belgium, it is forbidden to broadcast commercials during children's programs as well as during the 5 minutes before and after them. Australia does not allow ads during television programming for preschoolers. [40] Data are needed regarding whether more stringent regulation of television food advertising to children results in more healthful food choices and eating behaviors.

Summary and Conclusions

In recent years, the food and beverage industry has viewed children and adolescents as a major market force. As a result, children and adolescents are targeted aggressively by food advertisers, and are exposed to a growing and unprecedented amount of advertising, marketing, and commercialism through a wide range of channels. The principal goal of food advertising and marketing aimed at children is to influence brand awareness, brand preference, brand loyalty, and food purchases among youth.

A wide range of food advertising techniques and channels are used to reach children and adolescents to foster brand awareness to encourage product sales. [18] Marketing channels include television advertising, in-school marketing, product placements, kids clubs, the Internet, toys and products with brand logos, and youth-targeted promotions. The strong similarities between the marketing and promotional activities used by food companies to advertise unhealthy foods to children and those used by the tobacco industry to market cigarettes to children are striking. [82] For example, at one time tobacco companies were providing schools with free sports programs, scoreboards, and book covers featuring school logos on the front and cigarette ads on the back. [82] Young children were targeted with the sale of candy and bubble gum in packages that resembled those of actual cigarette brands. [82] Ads for cigarette brands popular with youth were selectively placed in magazines with large youth readerships. Promotional materials (caps, sports bags, lighters with cigarette brand logos), sweepstakes, and premiums were commonly used. The "Marlboro Man," with his image of independence and autonomy, struck a responsive chord among adolescent males. Studies of the use of the cartoon character Joe Camel to promote Camel cigarettes showed that 30% of 3-year olds and over 80% of 6-year olds could make the association between Joe Camel and a pack of cigarettes. [83] In the three years after the introduction of the cartoon camel character, preference for Camel cigarettes increased from 0.5 to 32% among adolescent smokers. [84]

Collectively, the advertising techniques and promotional campaigns targeting youth were highly successful in encouraging underage smoking. [85,86] A time-series study concluded that adolescents are three times as responsive to cigarette brand advertising as adults. [87] Several cross-sectional and longitudinal studies have clearly and strongly shown that exposure and receptivity to tobacco advertising and promotional activities is related to adolescent tobacco use. [86,88-90] Similar studies need to be conducted with food advertising and relationships to consumption of high fat, high sugar foods, and obesity.

Numerous studies have shown that foods heavily marketed to preschool and grade school children are predominantly high in sugar and fat, [36,40,41] which is the antithesis of healthful eating recommendations for children. Experimental studies have consistently shown that children exposed to food advertising prefer and choose advertised food products more frequently than those not exposed to such ads. [37] Purchase request studies with children under age 11 have also found strong associations between number of hours of television watched by children and number of children's requests to parents for those foods, as well as availability of those food items in the home. [37] Of concern is that African American and Hispanic children watch more television compared to white children. [33,34] Thus, they are exposed to more food ads. African American and Hispanic children also have a higher prevalence of obesity than white children. [13] Several studies have documented associations between the number of hours of television watched and the prevalence of obesity among children. [37] Research is needed to examine possible relationships between exposure to food advertising, eating behaviors and obesity.

Because marketing to children and adolescents has become so pervasive, many child advocates and media experts believe that such marketing constitutes an escalating public health problem. [73] Children, especially young children, are more susceptible to the effects of marketing than adults. Numerous studies have documented that children under 8 years of age are developmentally unable to understand the intent of advertisements and accept advertising claims as factual. [22] The intense marketing of high fat, high sugar foods to young children can be viewed as exploitation because they do not understand that commercials are designed to sell products and do not have the ability to comprehend or evaluate advertising. The purpose of advertising is to persuade, and young children have few defenses against such advertising. Older children and teens can be manipulated by the strong emotive messages in advertisements. [24] It can be argued that children, especially young children, are a vulnerable group that should be protected from commercial influ-

Table 7: Potential strategies and policy recommendations on food advertising and marketing aimed at children

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- Develop federal, state, or local policies to designate schools as food advertising-free zones, where children and adolescents can pursue learning free of commercial influences and pressures. Children's health should never be an acceptable "trade-off," no matter how severe the budgetary constraints in schools or communities. [44] If American public schools were adequately funded, in-school commercialism would be subjected to greater scrutiny, and schools would be less likely to enter into corporate agreements without more public debate. [90]
-
- Develop federal or state school policies that promote a healthful eating environment in schools. The sale of soft drinks and other high calorie, low nutrition foods should be prohibited during the school day in public schools.
-
- Congressional action to eliminate food advertising aimed at young children on children's television programs, such as morning, after-school, and weekend children's programs. Since the climate has not been favorable for regulation, interim means could be explored such as having stricter limitations on the amount of advertising permitted on children's television (e.g., no more than 5-6 commercial minutes per hour on programming which would reduce the current limits by about 50%), or by placing a monetary surcharge on advertising for high-calorie, low-nutrition foods targeted at youth. These funds could be used to develop nutrition and physical activity media campaigns and promotion programs to be overseen by a non-profit or governmental organization. As an interim step, guidelines for responsible food advertising and marketing aimed at children could be developed.
-
- Establish federal regulations to protect children from manipulative, invasive, and deceptive food advertising on the Internet. The FTC would be the most appropriate federal agency to develop such rules.
-
- Convene a White House or Surgeon General's Conference on food marketing and advertising aimed at children and adolescents and its effects on their health, and develop recommendations on this issue.
-
- Develop and disseminate school-based curricula that teach children and adolescents media literacy and give them life skills to be informed consumers of media.
-
- Build public support by increasing awareness among parents, educators, and consumers on the nature and extent of food advertising and marketing to children, especially young children.
-

ences that may adversely impact their health, and that as a society that values children, there should be greater social responsibility for their present and future health. Social and environmental structures can actively support and promote healthy food choices for children. [81] Table 7 provides examples of potential environmental strategies and policy recommendations for food advertising and marketing aimed at children and adolescents. There is a need for national discussion and dialogue on these issues.

The growing epidemic of childhood obesity has focused attention on the possible role that food and beverage advertising and marketing may play in influencing child and adolescent eating behaviors and body weight. More research is needed to examine whether food advertising is a causal factor for increased risk of obesity. Experimental and epidemiologic research, including longitudinal designs, is needed to study the effect of food advertising on children's food choices, eating behaviors and body weight. Studies need to include the various marketing channels used to reach youth, such as television, schools, and the Internet, as well as different age periods, such as early childhood, middle childhood and adolescence. This article focused on marketing practices and research conducted primarily in the US. However, a number of studies in other countries, such as Australia and the UK, have

found that television advertising to children for high sugar and high fat foods is prevalent. [39-41,72,74,81] Comparative international studies could help shed light on the prevalence and impact of food marketing and advertising to children.

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