

We used a variety of data sources and methods to provide a comprehensive analysis of the U.S. fast food market. Through publicly available data, we thoroughly document and evaluate the menus and marketing practices of the nation's largest fast food restaurants. Whenever possible, we used the same methods as our 2010 report, "Fast Food FACTS: Evaluation of the nutritional quality and marketing of fast food to youth,"¹ to measure changes over time.

Our methods include analyzing the nutritional quality of restaurant menu items; analyzing purchased data on media exposure and spending from syndicated sources (i.e., Nielsen and comScore); conducting content analyses of advertisements on children's TV; and evaluating marketing to youth on company websites, internet display advertising, social media, and mobile marketing. We supplement these analyses with information collected from company websites, monitoring of business and consumer press, and numerous visits to fast food restaurants and calls to their consumer helplines. These methods are described in detail in the following sections.

We did not have access to food industry proprietary documents, including privately commissioned market research, media and marketing plans, or other strategic documents. Therefore, we do not attempt to interpret fast food companies' goals or objectives for their marketing practices. Rather, we provide transparent documentation of: 1) the nutritional quality of menu items offered by fast food restaurants; 2) the extent of children's and adolescents' exposure to common forms of fast food marketing, including exposure by black and Hispanic youth; 3) the specific products promoted and marketing messages conveyed in traditional and digital media; and 4) changes in nutrition and marketing that occurred from 2009 to 2013.

Scope of the analysis

To narrow down the list of restaurants to evaluate, we obtained 2012 sales data for the 50 largest fast food restaurants in the United States using figures estimated for *QSR Magazine*.² We also used Nielsen data to identify fast food restaurants with advertising spending on national TV in 2012. From these analyses, we identified 18 restaurants that are the focus of this report. These restaurants include the 12 restaurants highlighted in the 2010 Fast Food FACTS report, as well as six additional restaurants that met at least one of two criteria: 1) ranked among the top-15 in 2012 U.S. sales, or 2) had child-targeted messages on their websites and national TV advertising. We also conducted a more limited analysis of the 25 restaurants with the most advertising spending on national TV in 2012.

The data reflect marketing practices used to promote fast food restaurants from January 1, 2008 through July 30,

2013. Most of the analyses assess practices during the 2012 calendar year and compare them to 2009, although time frames available for analysis varied by type of data. Specific time frames examined are described in the following Methods sections. However, fast food menu items and marketing practices change continuously. The information presented in this report does not include any new products or product reformulations, advertising campaigns, website redesigns, or other marketing programs introduced after July 2013.

Fast food menus and nutritional quality

We analyzed the menus of 12 of the 18 restaurants examined in this report. The six pizza and coffee restaurants were excluded due to the predominance of one or two food item categories on those menus (e.g. pizza at pizza restaurants and snack items and coffee beverages at coffee restaurants), which limited our ability to compare these restaurants' menus to more traditional fast food restaurants. We obtained lists of all menu items and corresponding nutrition information for the 12 restaurants from menus posted on company websites as of February 15, 2013. We used these menus to conduct more detailed nutrition analyses of the full menus at the top-five traditional fast food restaurants (McDonald's, Subway, Burger King, Wendy's, and Taco Bell) and special menus (i.e., dollar/value and healthy menus) available at the 12 restaurants. These menus were also used for the nutrition analyses of advertised products, described in more detail later.

Food categories

Fast food restaurants typically have extensive menus with numerous types of foods. To systematically evaluate these menus, we defined **food categories** to describe different types of menu items. Menu items were assigned to one of 15 food categories according to whether they appeared on a special menu for children (i.e., **kids' meal** or menu) or the main menu, the eating occasion when foods are typically consumed (breakfast, lunch/dinner, or snack), and whether they are typically consumed alone, as a main dish, or as part of a meal in addition to a main dish (i.e., sides). We also classified types of beverages separately from foods. We defined beverages as any item that could be consumed using a straw.

- Menu items offered in kids' meals were classified as a **kids' main dish, kids' side, or kids' beverage**.
- Items traditionally consumed in the morning were classified as **breakfast main dishes** and **breakfast sides** (e.g., egg dishes, pancakes, and hash browns). **Breakfast meals** contained more than one breakfast item served together as one menu item, such as a pancake platter with sausage.
- Items traditionally consumed as the main item in a lunch or dinner meal were classified as **lunch/dinner main dishes**.

- **Lunch/dinner sides** and **side beverages** are items typically consumed in addition to a main dish at lunch or dinner. Common sides include french fries and fruit; common side beverages include soft drinks, milk, and water.
- Menu items that could be consumed on their own at non-meal times or after a meal were classified as **snacks** and **snack beverages**. Snack beverages include ice cream and other frozen beverages; and snacks include all dessert items as well as sweet baked goods, such as donuts and muffins.
- Due to the number of options available on many of the restaurant menus, **coffee beverages** were also classified as a separate food category and include lattes, cappuccinos, and mochas. Frozen coffee beverages (e.g., frappuccinos) were classified as snack beverages.

Special menus

In addition to individual menu items, many restaurants also promote a specific subset of items as a **special menu**. In addition to kids' menus, many restaurants also promote **dollar/value menus**, or groups of individual items offered at a special price (e.g., Dollar, Right Price Right Size, \$5 Footlongs menus). Some restaurants also promote **healthy menus**, or groups of items designated as healthier in some way (e.g., low(er) in calories). Researchers identified all special menus presented on company websites as of February 2013. We did not categorize limited-time pricing promotions for individual menu items as special menus.

Menu standardization

All restaurants in our analyses reported total grams or ounces, calories, fat, saturated fat, trans fat, sugar, sodium, protein, and fiber per menu item or serving except Wendy's and Chick-fil-A, which did not report grams. Items on the kids' menu at Chick-fil-A were weighed manually to obtain grams. One-half of Wendy's menu items were purchased and manually weighed. Third-party nutrition websites were used to obtain gram weights for the remaining items on Wendy's full menu. The accuracy of the weights provided by these websites was verified using weights obtained for the purchased products. Fruit, vegetable, and nut content estimations were based on our 2010 data.

To standardize menu items across different chains, we made several adjustments to the items as reported by some restaurants. Following are the general principles applied to all menus:

- **Only regular menu items are included.** If an item was listed as a regional or limited-time item, it was not included unless the item was also promoted in national TV advertising.
- **Regular menu items and kids' menu items are listed separately.** If an item was only available on the kids' menu, it was not included in the regular menu analysis. Kids' items

that were also available for sale on the regular menu (e.g., a regular hamburger or 16-ounce drink) were included on both menus.

- **All sizes of all items are listed as separate menu items,** including drinks, sides, and sandwiches.
- **All individual menu items are listed separately.** If a restaurant sold a combination of items as a meal (e.g., a kids' meal), those combinations were not included as individual menu items unless they also were listed on the restaurants' website menus as one item (e.g., pancakes and sausage).
- **Menu items with multiple components listed separately are combined into one item.** Examples include salads with dressing and croutons and chicken nuggets with sauce. If the item had a default combination (i.e., specific extra items that are automatically included with the main item), the default combination was used. If the item was typically offered with different choices (e.g., type of salad dressing or sauce), the item was reported as two separate items for both the healthiest and least nutritious options according to NPI score (e.g., chicken nuggets with barbecue sauce and chicken nuggets with ranch sauce).
- **Menu items are listed twice if consumers typically customize them by choosing individual ingredients** (e.g., deli sandwiches), including the most and least nutritious version of the item according to NPI score. For example, a deli sandwich with whole-grain bread, no cheese, and no sauce, as well as the same sandwich with a higher-calorie bread, cheese, and mayonnaise are listed separately.
- **Both the default and healthier options are listed as separate menu items if the restaurant provided an option on its menu to improve the overall nutritional quality of a specific item,** such as a sandwich without the usual mayonnaise or an egg dish made with egg whites.
- **A menu item is converted to a one-person portion size when listed as one item to be consumed by more than one person** (e.g., "sharable size"). Items indicated as "family-sized" were divided by four. When items did not have a suggested number of servings, we used another menu item that was indicated as a one-person item to identify an appropriate per-person portion.
- **A one-person portion size is calculated by combining menu items listed individually that are typically consumed in multiples** (e.g., chicken pieces). If the restaurant promoted meals containing multiple pieces of the same item, those meal suggestions were used to calculate a one-person portion of the menu item. If the items were typically sold in a family size or bucket, the criteria cited above were used to calculate the one-person portion.

Nutritional quality

We evaluated the nutritional quality of kids' meals and individual menu items on restaurant menus according to several criteria. The **Nutrition Profiling Index (NPI)** score provided an evaluation of the overall nutritional composition of individual menu items. The NPI score is based on the nutrition rating system established by Rayner and colleagues for the Food Standards Agency in the United Kingdom.³ To identify reasonable portion sizes for children and adolescents, we also compared **total calories** and **total sodium** for kids' meals and regular menu items against standards established by the Institute of Medicine's (IOM) School Meal guidelines.⁴ Lastly, we evaluated menu items according to other established criteria for nutritional quality. The following describes each of these criteria in more detail.

NPI score

The NPI score was calculated for each menu item. The score provides a measure of the overall nutritional quality of foods and beverage. It is adapted from the Nutrient Profiling model (NP) currently used by the U.K. Office of Communications (OFCOM) to identify nutritious foods that are appropriate to advertise to children on TV.⁵ The model also has been approved by Food Standards Australia New Zealand to identify products that are permitted to use health claims in their marketing.⁶ The NP model provides one score for a product based on total calories and proportion of healthy versus unhealthy nutrients, and specific food groups or items, including saturated fat, sugar, fiber, protein, sodium, and unprocessed fruit, nut, and vegetable content. All menu items, including individual items in kids' meals, received individual NPI scores.

The NP model has several advantages over other nutrient profiling systems. University of Oxford nutrition researchers developed the model independently of food industry funding. Its development and scoring method is publicly documented and transparent. It has been validated to reflect the judgment of professional nutritionists.⁷ The model also produces a continuous score that provides a relative evaluation of products, in contrast to threshold models that simply classify foods as "good" or "bad." In addition, the model includes only nutrients that are reasonable and well-justified based on existing nutrition science. In particular, the model does

not award points for micronutrient fortification, thereby not rewarding vitamins and minerals added to inherently unhealthy products. **Appendix B** provides a detailed description of the model design, scoring method, and benefits.

However, interpretation of the original scores produced by the NP model is not intuitively obvious. The original model is reverse scored (i.e., a higher score indicates a product of worse nutritional quality), and scores range from a high of +34 to a low of -15. In addition, a score of 3 points or lower identifies healthy foods that are allowed to be advertised to children in the United Kingdom. Therefore, we created an NP Index (NPI) score using the following formula: $NPI\ score = (-2) * NP\ score + 70$. For example, a relatively nutritious food with an NP score of -3 would receive an NPI score of 76 ($-2 * -3 + 70$). This recalculation produces a score from 0 (poorest nutritional quality) to 100 (highest nutritional quality) that is easier to interpret and compare.

To identify menu items with a healthy nutrient composition, we used the cut-offs established by the U.K. OFCOM to identify healthy products.⁸ Only food products with an NP score of 3 or lower and beverages with an NP score of 0 or lower are permitted to be advertised on children's TV programs in the United Kingdom or during programs with a disproportionate number of viewers under 16 years old. This score translates to a revised NPI score of 64 or higher to qualify as a healthy food product and 70 or higher for healthy beverages. All menu items, including individual items in kids' meals, received individual NPI scores.

Calorie and sodium upper limits

We also established maximum acceptable upper limits for calories and sodium in kids' meals and individual menu items and identified menu items that exceeded these upper limits. Children's menu items were evaluated as part of a total meal that included all possible combinations of individual menu items available with a kids' meal (typically a main dish, side, and beverage). All other menu items were evaluated individually.

Table A1 provides the maximum acceptable levels of calories and sodium for a) kids' meals served to both preschool and elementary school-age children; b) lunch or dinner main dish items or meals; c) breakfast main dish items or meals; and

Table A1. Maximum acceptable calories and sodium for kids' meals and individual menu items

Kids' meals	Maximum calories (kcal)	Maximum sodium (mg)
Elementary school-age children (per meal)	650	636
Preschool-age children (per meal)	410	544
Regular menu items (based on recommended upper limits for adolescents)		
Lunch or dinner main dishes (per individual item or meal)	700	720
Breakfast main dishes (per individual item or meal)	500	480
Sides, snacks and beverages (per individual item)	350	340

d) sides, beverages, snack foods, and sweet snacks. These criteria are based on the recommendations for upper limits of calories and sodium for school meals served as part of the National School Lunch Program established by the Institute of Medicine (IOM) Committee on School Meals.⁹

On an average visit to a fast food restaurant, 36% of children under 6, 21% of children between 6 and 12, and 2% of children between 13 and 17 order kids' meals.¹⁰ Because preschool-age children require fewer calories compared to older children, we established separate kids' meal criteria for elementary school-age and preschool-age children. We assumed that most adolescents would order from the restaurants' main menus, and therefore set the criteria for main menu items based on recommended calories and sodium for this age group.

- **Kids' meals for elementary school-age children.** The recommended maximum levels for lunch meals served to 5- to 10-year-olds specified in the IOM School Meals report were used to set the limits for elementary school-age children.¹¹
- **Kids' meals for preschool-age children.** To calculate maximum acceptable calories and sodium for kids' meals served to preschool-age children, we used the same method reported in the IOM School Meals report. The USDA recommends that a moderately active 2- to 5-year-old child should consume 1,275 calories daily¹² and should not consume more than 1,700 mg of sodium.¹³ Children consume on average 32% of their daily calories at lunch;¹⁴ therefore, maximum acceptable amounts for kids' meals served to preschoolers are 410 calories and 544 milligrams of sodium.
- **Lunch/dinner main dish items on the main menu.** To set limits for evaluating lunch/dinner and breakfast items for young people from 12 to 17 years, we averaged IOM recommendations for two age groups (11-13 and 14-18 years) for maximum amounts of calories and sodium for specific meals on the regular menu. No recommendations are available for individual meal items; therefore, we used recommended maximum amounts for meals to set limits for main dish lunch/dinner and breakfast items. Visitors to fast food restaurants order 2.4 menu items on average at an eating occasion.¹⁵ As a result, these limits represent the most calories and sodium that any young person should consume from one main dish item, especially if he or she also orders a side and/or beverage.
- **Individual items served as snacks, beverages, or sides.** The average daily amount recommended for a moderately active 13- to 17-year-old is 2,300 calories;¹⁶ and the recommended upper limit for sodium intake is 2,250 milligrams.¹⁷ Because young people consume on average 30% of their daily calories through snacks,¹⁸ and children consume on average two snacks per day,¹⁹ the maximum acceptable levels for a snack, beverage, or side consumed

in addition to a main dish item is 350 calories and 340 milligrams of sodium for adolescents.

Evaluating kids' meal combinations and main menu items

To evaluate kids' meals, we calculated NPI scores for individual kids' meal items and total calories and sodium for all possible combinations of main dish, side, and beverage items. We then identified kids' meal items with healthy NPI scores and combinations of items that met the acceptable calorie and sodium limits defined in **Table A1**. We also identified the best and worst kids' meal combinations as follows: for each restaurant, we selected the main dish, side, and beverage with the highest and lowest NPI scores and combined them to create the "best" and three "worst" kids' meal combinations for each restaurant. If more than one combination had the same NPI score, we chose the combined items with the lowest calorie content for the best list and the highest calorie content for the worst list. In addition, we provide estimated grams of added sugar for individual kids' meal menu items. We calculated added sugar in flavored milks by subtracting the sugar contained in plain milk offered with the same serving size and fat content.

For each product category on the menus of the top-five traditional fast food restaurants, we calculated the range of per-item values and medians for NPI score, calories, and sodium. We also calculated percents of items with a healthy NPI score and that met maximum total calories and total milligrams of sodium compared to the limits for the product category (as defined in **Table A1**), in addition to items that met all three criteria. We calculated the same values for all items included in dollar/value menus and healthy menus for the 12 restaurants. We also used these measures to analyze advertised products for the eight non-pizza and non-coffee restaurants that were evaluated in the 2010 report.

Chi-square of significance tests were used to compare differences in percent of items that met criteria by year (2010 vs. 2013). The statistical comparisons include percent of kids' meal combinations by restaurant that met calorie and sodium limits for preschoolers and elementary school-age children, percent of all menu items by type and by restaurant that met nutrition criteria for adolescents for the top-five traditional fast food restaurants, and percent of menu items available on dollar/value menus and healthy menus that met nutrition criteria for adolescents. Statistical significance is reported for differences at $p \leq 0.05$.

Additional nutritional quality measures for kids' meal combinations

We also evaluated the nutritional quality of kids' meal combinations using other established nutrition criteria, including the Interagency Working Group (IWG) proposed

standards for foods marketed to children and adolescents, Kids LiveWell standards established by companies participating in the Children's Food and Beverage Advertising Initiative (CFBAI) to identify products that can be advertised to children, and Kids LiveWell standards established by the National Restaurant Association for healthy kids' meals.

- **IWG interim nutrition standards.** The Federal Trade Commission (FTC), FDA, the Centers for Disease Control and Prevention (CDC), and the USDA were commissioned by Congress in 2009 to develop recommendations for the nutritional quality of foods marketed to children and adolescents. These recommendations represent consensus among the experts in these federal agencies about appropriate standards. The IWG recommendations specify limiting four nutrients as follows:
 - Saturated fat: <10% of calories
 - Added sugars: < 13 grams of added sugar
 - Sodium: ≤450 milligrams of sodium
 - Trans fat: Zero grams
- **CFBAI new uniform standards** for fast food meals.²⁰ Through this Better Business Bureau program, participating companies pledge to advertise only foods that meet nutrition standards to children under 12. New uniform standards (to be implemented by the end of 2013) require that fast food meals featured in child-directed advertising contain no more than 600 calories and 740 milligrams sodium, 10% of calories from saturated fat, and 20 grams of sugar. The guidelines make some exceptions for sugar in fruit, dairy, and 100% juice. To be conservative, we included only added sugars in these limits. CFBAI qualifying meals must also contain a fruit, vegetable, whole grain, lean protein, low fat dairy, or fortification. However, this information was not available from the restaurants so we did not include this requirement in our analysis.
- **Kids LiveWell.** Kids LiveWell is a voluntary program of the National Restaurant Association to identify healthful meals for children. Participating restaurants must offer at least one kids' meal combination that meets the following criteria:²¹ maximum 600 calories and 770 milligrams sodium; no more than 35% of calories from total fat, 10% of calories from saturated fat, and 35% of calories from sugar; and less than 0.5 grams trans fat. Qualifying meals must also contain two sources of fruit, vegetable, whole grain, lean protein, or low fat dairy, but this requirement was not included in our analysis.

Marketing practices

The analysis of fast food marketing practices documents advertising spending and marketing on TV and in digital media, including restaurant websites, display advertising on third-party websites, social media, and mobile devices. We also identify marketing that appears to be targeted to children, teens, and black and Hispanic youth.

Traditional media

To measure fast food restaurants' marketing practices in traditional media we licensed Nielsen data for advertising spending in all measured media and exposure to TV advertising (including Spanish-language) by age group and race. These data document total fast food restaurant advertising spending and TV exposure from 2009 to 2012.²² We also provide more detailed analyses of the 25 restaurants with the most national TV advertising spending in 2012. In addition, we conducted a content analysis of the messages and specific menu items promoted in TV advertising that appeared on children's commercial networks.

Advertising spending

Nielsen identified 264 restaurants in the Quick Serve Restaurant (QSR) category (Product Classification Code [PCC] = G330) with advertising spending in 2012. We also obtained Nielsen data for two additional restaurants in the *QSR Magazine* Top 50²³ that were classified by Nielsen as coffee/donut retail shops (PCC = G716) (Starbucks and Dunkin' Donuts). Nielsen tracks total media spending in 18 different media including TV, internet, radio, magazines, newspaper, free standing coupon inserts, and outdoor advertising. We licensed these data for all fast food restaurants for the four-year period. These data provide a measure of all fast food **advertising spending**.

TV advertising exposure

To measure exposure to fast food TV advertising, we also licensed gross rating points (GRP) data from Nielsen for the same period and restaurants. GRPs measure the total audience delivered by a brand's media schedule. It is expressed as a percent of the population that was exposed to each commercial over a specified period of time across all types of TV programming. It is the advertising industry's standard measure to assess audience exposure to advertising campaigns; and Nielsen is the most widely used source for these data.²⁴ GRPs, therefore, provide an objective assessment of advertising exposure. In addition, GRPs can be used to measure advertisements delivered to a specific audience, such as a specific age or other demographic group (also known as target rating points or TRPs), and provide a "per capita" measure to examine relative exposure among groups. For example, if a restaurant had 2,000 GRPs in 2012 for 2- to 11-year-olds and 1,000 GRPs for 25- to 49-year-olds, then we can conclude that children saw twice as many ads for that restaurant in 2012 as compared to adults.

The GRP measure differs from the measure used to evaluate food industry compliance with their CFBAI pledges. The pledges apply only to advertising in children's TV programming as defined by audience composition (e.g., programs in which at least 35% of the audience are under age 12); less than one-half of all advertisements viewed by children younger

than 12 occur during children's programming.²⁵ In contrast, GRPs measure children's total exposure to advertising during all types of TV programming. Therefore, evaluating GRPs will determine whether participating companies reduced total TV advertising to this age group.

In the TV advertising analyses, we first identified GRPs for the following demographic groups: 2-5 years, 6-11 years, 12-17 years, 18-24 years, and 25-49 years. These data provide exposure to national (network, cable, and syndicated) and local (spot market) TV combined. We also obtained GRPs for advertising viewed by black and white youth in the same age groups on national TV only; Nielsen does not provide spot market GRPs for blacks at the individual level. Spot TV advertising accounted for 11% of fast food restaurant advertising viewed by youth (2-17 years) during 2012. Therefore, these data reflect an estimated 89% of black youth exposure to TV fast food restaurant advertising. To assess exposure by Hispanic youth to Spanish-language advertising, we provide GRP data for advertising that occurred on Spanish-language TV.

Nielsen calculates GRPs as the sum total of all advertising exposures for all individuals within a demographic group, including multiple exposures for individuals (i.e., gross impressions), divided by the size of the population, and multiplied by 100. GRPs may be difficult to interpret. Therefore, we also use GRP data to calculate the following TV advertising measures:

- **Average advertising exposure.** This measure is calculated by dividing total GRPs for a demographic group during a specific time period by 100. It provides a measure of ads viewed by individuals in that demographic group, on average, during the time period measured. For example, if Nielsen reports 2,000 GRPs for 2- to 5-year-olds for a restaurant in 2012, we can conclude that on average all 2- to 5-year-olds viewed 20 ads for that restaurant in 2012.
- **Targeted GRP ratios.** As GRPs provide a per capita measure of advertising exposure for specific demographic groups, we also used GRPs to measure relative exposure to advertising between demographic groups. We report the following targeted GRP ratios:
 - Preschooler:adult targeted ratio = GRPs for 2-5 years/GRPs for 25-49 years
 - Child:adult targeted ratio = GRPs for 6-11 years/GRPs for 25-49 years
 - Teen:adult targeted ratio = GRPs for 12-17 years/GRPs for 25-49 years
 - Black:white child targeted ratio = GRPs for blacks 2-11 years/GRPs for whites 2-11 years. This measure uses only national GRPs.
 - Black:white teen targeted ratio = GRPs for blacks 12-17 years/GRPs for whites 12-17 years. This measure uses only national GRPs.

A targeted ratio greater than 1.0 indicates that on average persons in the group of interest (i.e., children in the child:adult ratio) viewed more advertisements than persons in the

comparison group (i.e., adults), while a targeted ratio less than 1.0 indicates that they viewed fewer ads. For example, a child:adult targeted ratio of 2.0 indicates that children viewed twice as many ads as adults viewed. If this ratio is greater than the relative difference in the amount of TV viewed by each group, we can conclude that the advertiser likely designed a media plan to reach this specific demographic group more often than would occur naturally.

TV advertising exposure by product type

In addition to the Nielsen GRP data at the restaurant level described above, we also obtained GRPs at the brand variant level for national advertising in 2012 for the 18 restaurants in our detailed analysis. Creative descriptions for all ads aired for each brand variant also were obtained. Researchers then categorized ads into **product types** based on the brand variant name and creative description. In some cases, the brand variant name and creative descriptions did not provide enough information to categorize the ads. For these ads, a researcher viewed copies of individual advertisements to determine which product type was the main focus of the ad.

Ads were classified as follows:

- **Kids' meals.** Any kids' meal, either with or without specific kids' meal menu items.
- **Branding only.** The restaurant as a whole is the main point of the ad. Food may be pictured, but no specific food products are mentioned.
- **Breakfast items.** Any menu items typically consumed for breakfast.
- **Coffee beverages.** Any type of coffee beverage, including hot and frozen varieties.
- **Healthy options.** Healthy menu, menu items, or healthy version of a meal (as designated by the restaurant).
- **Lunch/dinner items.** Individual lunch/dinner menu items or line of items including main dishes, sides, and side beverages.
- **Promotion only.** Only a promotion is mentioned. Food may be pictured in the ads, but not mentioned.
- **Snacks/desserts.** Items typically consumed as a dessert or snack, including snack beverages.
- **Value menu/combo meals.** Value menu, dollar menu, combo meals, or other special pricing for a group of individual menu items, including mentions of the entire menu or specific items included on the value menu or in a combo meal.

TV advertising content analysis

We conducted a content analysis to evaluate the messages and marketing techniques used in advertisements that

appeared on children's TV. Using the AdScope database from Kantar Media, we obtained digital copies of all fast food advertisements from the top 18 restaurants that aired nationally in the United States from January 1, 2012 through December 31, 2012 on five children's commercial networks: Nickelodeon, NickToons, Cartoon Network, The Hub, and Disney XD. Research assistants viewed each ad and removed duplicates, including 15-second shortened versions of 30-second ads.

We used the coding manual developed for the 2010 Fast Food FACTS report as the basis for the coding manual for the present study.²⁶ Two coders were trained to review the advertisements and code them for all items in the manual. In several pre-test group sessions, the project manager and coders evaluated 10 to 20 food advertisements during each session. These ads were selected from those used in the 2010 content analysis. Following these sessions, the project manager resolved coder disputes and revised and finalized the coding manual.

The final coding manual included six main categories:

- **Selling point**, or direct benefit of the product. Coders chose as many selling points as were present in the ad. These included: **new/improved** if the ad introduced a new product or an improvement to an old one; **value/cheap** if the ad highlighted the price of the product, such as "buy one get one free," "now for the low price of..." or "only 99 cents;" **health/nutrition** for claims about the nutrition, nutrients, or health outcomes of consuming the product; **quality food** if the ad used natural, fresh, real, quality, or similar words to describe the food; and **limited-time special offers** for short-term price promotions, giveaways, and new products that "won't be here long."
- **Product associations**, or indirect benefits of the product suggested or implied in the ad. Coders chose as many product associations as were present in the ad. These included: **physical activity** when the ad portrayed, suggested, or encouraged physical activity in any way; **fun/cool** claims, typically made implicitly by depicting enjoyable social occasions, excitement or adventure, standing out in a crowd, superiority, and pop-culture references; **humor** if the ad included comedic elements, obvious or subtle, irony, or sarcasm; and **adults as negative or incompetent** if the ad belittled or poked fun at adult figures, parents, or other authority figures.
- **Main characters in the ad** or purchasers/consumers when indicated. Age was categorized as children (0 to 12 years), teens/young adults (13 to 29 years), older adults (30 years and older), and parents (buying food for children).
- **Third-party tie-ins** included appearances by outside (not brand-related) persons, characters, or other companies/organizations, such as celebrities (famous actors, athletes, and musicians); **movies/TV shows/video games**; and **licensed characters** when a character from a TV, movie, or video game was featured in the ad (e.g., a "Shrek" toy promotion in a kids' meal).
- **Brand spokes-characters**, or fictional characters or mascots associated specifically with the brand or intrinsic to the identity of the brand (e.g., Ronald McDonald, Wendy).
- **Eating behaviors** that were portrayed or suggested. These included: **place of consumption** to describe where the food was apparently consumed (i.e., in the restaurant or other place); and **time of consumption** to describe when the food was consumed (e.g. late at night or unclear).
- **Website** references, either suggested or depicted on the screen. All references to websites were recorded, including reference to third-party sites.

Formal reliability testing was conducted using a sample of 37 ads from the final inventory. Cohen's Kappa²⁷ was used to measure inter-rater reliability. Each coder coded this same subset of ads. Kappa values ranged from .30 (fair) to 1.00 (perfect) agreement with 72% of the items receiving substantial to perfect agreement (.61 to 1.00) and only 1% receiving values in the fair range of agreement (.21 to .40). Items with Kappa values lower than .60 were discussed and redefined for clarity prior to moving forward with the final coding. The remaining advertisements were randomly assigned to the two coders, and final coding occurred over a three-week period.

TV advertising nutrient content analysis

We analyzed the nutrient content of products that appeared on television ads for eight restaurants: the restaurants in the 2010 analysis, excluding the pizza and coffee restaurants. Researchers viewed these ads to identify items that were prominently featured and how items were intended to be consumed (i.e., a single menu item, a combination of menu items, or one of a variety of advertised items).

To calculate the calorie and sodium content of individual ads, we used different procedures according to whether the ad appeared to encourage consumption of one type of food (e.g., one of several different sandwiches) or more than one food (e.g., a sandwich and a side item). If the ad encouraged consumption of one food, we averaged the nutrient information for all foods that were predominantly featured in the ad. If the ad encouraged consumption of more than one food, we added the nutrient information for all main foods presented to obtain total calories, sodium, saturated fat, and total sugar. In a few instances, ads promoted more than one food category and more than one main food within the categories. For those ads, we averaged the nutrient information for main foods within each category and added the average of the food categories together.

We then used 2012 GRPs for each ad to calculate the weighted **average calories** and **average sodium** per ad viewed by children and teens for each restaurant in our analysis. These measures provide a comparison of the nutrient content of foods featured in ads viewed by different age groups. We also multiplied the weighted average measures for each ad viewed by the average number of ads viewed per day by

preschoolers, children, and teens, and by black age groups to provide **total calories**, **proportion of calories from sugar and saturated fat**, and **total sodium** viewed in fast food TV ads daily. The breakdown of calories viewed per day by restaurant is also reported. We also compared differences between 2009 and 2012 results. Finally, we examined the nutrient content of menu items that appeared in individual restaurant ads seen most often by children and teens.

Internet and other digital media

We document three types of youth-targeted marketing on the internet: restaurant (i.e., company-sponsored) websites, display advertising on other (i.e., third-party) websites, and social media marketing. Additionally, we provide examples of mobile marketing conducted by fast food restaurants.

Website exposure

We began with a list of restaurant websites that were included in the 2010 Fast Food FACTS report and added new restaurant sites, as well as sites for the six additional restaurants examined in this report, that existed during January through December 2012. For the purposes of this analysis, a website is defined as all pages containing the same stem URL. For example, HappyMeal.com is the website of interest, and HappyMeal.com/#play is an example of a secondary page contained within the site.

We obtained data on exposure to these websites from comScore Media Metrix Key Measures Report.²⁸ The company captures the internet behavior of a representative panel of about 350,000 users in the United States.²⁹ It is the nation's largest existing internet audience measurement panel. The firm collects data at both the household and individual level using Session Assignment Technology, which can identify computer users without requiring them to log in. The company uses these panel data to extrapolate its findings to the total U.S. population. Companies participating with comScore can also have census tags placed on their web content and advertisements to further refine audience estimates. Using the comScore panel, we identified individuals' exposure to restaurant websites, including exposure for both children and adults in the same household. The Media Metrix database provides internet exposure data for all websites visited by at least 30 of their panel members in a given quarter.³⁰ Media Metrix also provides exposure information by visitor age, ethnicity, and race for larger volume websites.

We first searched the comScore Media Metrix database to identify the fast food restaurant websites for which exposure data were available from January through December 2012. For each quarter during this period, we also used the Media Metrix Key Measures Report to collect the following data for available restaurant websites: total unique visitors, total visits, average minute per visit, and average visits per unique visitor.

In addition, when enough website traffic was recorded in a given quarter we also collected these measures separately for children (2-11 years), teens (12-17 years), and all youth (2-17 years), and for black, Hispanic, and all youth (6-17 years).

For each of the demographic groups with data, we also report a **targeted index**, which measures the extent to which child or teen visitors to a website are over- or underrepresented compared to all visitors (2+ years) and the extent to which black or Hispanic youth visitors to a website are over- or underrepresented compared to all 6- to 17-year-old visitors. Targeted indices greater than 100 signify that the demographic group was overrepresented on a website in relation to the comparison group; and targeted indices less than 100 signify that it was underrepresented. For example, if 40% of black youth visited HappyMeal.com, but 20% of all youth visited HappyMeal.com, the black youth targeted index for HappyMeal.com would be 200.

For each website in our analysis, we report the following website exposure measures:

- **Average unique visitors per month** for children, teens, and black and Hispanic youth. This measure was calculated by adding average total unique visitors per month, as reported quarterly by comScore, from January through December 2012 for each demographic group divided by four (for four quarters).
- **Average visits per month**,³¹ **average pages per month**, and **average minutes per visit** for each unique visitor. Quarterly numbers, as reported by comScore, were averaged for each website. The company only reports these data for the larger demographic groups. If separate data were not available for the specific demographic group, we used the information for the next largest demographic group. For example, if data were not available for 2- to 11-year-olds specifically, we report the data for 2- to 17-year olds.
- **Child and teen targeted indices** were calculated by dividing the percent of visitors to the website who were children (2-11 years) or teens (12-17 years) by the percent of child and teen visitors to the total internet. First, the percent of visitors exposed to the website from each age group (2-11 years or 12-17 years) was obtained by averaging the number of monthly unique visitors to the website for that age group for the four quarters of 2012 and dividing that number by all average monthly unique visitors to the website (ages 2+). The same calculations were done for visitors to the total internet during the four quarters of 2012 for the same age group. The percent of child or teen visitors to the website was then divided by the percent of child or teen visitors to the total internet and multiplied by 100 to get the targeted index.
- **Black youth** and **Hispanic youth targeted indices** were calculated by dividing the percent of black or Hispanic youth (6-17 years) who visited the website by the percent of all youth who visited the website. First, the percent of black

or Hispanic youth who visited the website was obtained by averaging the number of monthly unique visitors to the website for that group for the four quarters of 2012 and dividing that number by all black or Hispanic youth visitors to the total internet. The same calculations were done for all youth visitors to the website during the four quarters of 2012. The percent of black or Hispanic youth who visited the website was then divided by the percent of all youth who visited the website and multiplied by 100 to get the targeted index.

Display advertising on third-party websites

Data for exposure to fast food advertising on **third-party websites** (i.e. websites sponsored by other companies) were extracted from the comScore Ad Metrix Advertiser Report.³² comScore Ad Metrix monitors the same panel of users as comScore Media Metrix but tracks advertisements that are completely downloaded and viewable on a user's web browser. Ad Metrix, therefore, measures individual exposure to display ads presented in rich media (SWF files) and traditional image-based ads (JPEG and GIF files). It does not capture text, video, or html-based ads. Ad Metrix also identifies the unique user viewing the advertisement, the third-party website on which the advertisement was viewed, and the company sponsoring the advertisement.

Third-party website data were collected for January through December 2012. During the time period of our analysis, Ad Metrix did not report demographic information about the individuals who were exposed to these advertisements. Consequently, we cannot differentiate between exposure by any specific age group, including children, adolescents, or Hispanic or black youth.

The Product Dictionary from comScore was used to determine the display advertisements of interest. The company provided display advertisement data for the 18 restaurants in our analysis. For some restaurants, comScore also provided detailed data for specific menu items or promotions. For example, comScore provided display ad exposure data for McDonald's Chicken McNuggets and Happy Meal ads in addition to data for all McDonald's display ads combined. The company provides data for display ads for any fast food restaurant, menu item, or promotion in its dictionary that was viewed at least ten times by comScore panel members on the internet or on a specific publisher site.

Measures available from comScore for each month include **display ad impressions** (i.e., the number of advertisements fully downloaded and viewed on publisher websites), **advertising exposed unique visitors** (i.e., the number of different individuals exposed to advertisements on a publisher website), and **average frequency of ad views** per unique visitor by fast food advertiser. This information is available for the total internet and for individual publisher websites.

As we could not separate ads viewed by age group, we identified websites on which the advertisements appeared that were disproportionately targeted to youth (i.e., youth websites) and children (i.e. kids' websites).

For the first three quarters of 2012, we defined a **youth website** as a website that met one of two conditions: 1) It was identified by comScore as an entertainment website for youth ages 2-17 or as a teen community website during the period examined; or 2) the proportion of visitors ages 2-17 to the website exceeded the total percentage of visitors to the internet ages 2-17 during the time period examined. In the last quarter of 2012, comScore changed its website classification system and eliminated the youth entertainment category. Therefore, we only used the proportion of visitors ages 2-17 to define youth websites for ads that appeared during the fourth quarter of 2012.

We also identified websites that were targeted to children. We defined a **kids' website** as a website that met two conditions: 1) It met the criteria for being considered a youth website; and 2) over 20 percent of the unique visitors to the website were ages 2-11 years. Because we are unable to differentiate between ads viewed by youth under 18 years versus adults, we instead assume that advertising on youth and kids' websites will be viewed by disproportionately more young people.

From the comScore data, we calculated the following measures for each fast food product (including websites, menu items, and promotions) for which display advertising was found. Total numbers also were calculated for all identified restaurant products:

- **Unique viewers per month**³³ was calculated by adding the number of unique visitors exposed to a product's advertising reported monthly from January through December 2012 and dividing by 12.
- **Ads viewed per viewer per month** was calculated by averaging the number of ads viewed per viewer for the product for each month from January through December 2012.
- **Proportion of ads viewed on kids' websites, youth websites, and Facebook** were calculated by dividing the restaurant product's total display ad impressions that appeared on kids' websites, youth websites, and Facebook by the total display ad impressions that appeared on all websites from January 2012 through December 2012.
- **Average ads viewed on kids' websites, youth websites, and Facebook per month** were calculated by adding a product's display ad impressions on kids' websites, youth websites, and Facebook reported monthly from January through December 2012 and dividing by 12.

Mobile advertising

We examined three types of marketing used by the 18 restaurants in our analysis to reach consumers on their mobile devices: restaurant-sponsored mobile websites, display ads on third-party mobile websites, and smart phone applications.

For both restaurant-sponsored mobile websites and display ads on third-party mobile websites, comScore is unable to track smartphone or tablet usage for persons under 18 years old. Therefore, our data reflect the websites visited and ads viewed by users 18 years and older.

We utilized data from comScore's Mobile Metrix³⁴ application to measure exposure to restaurants' **mobile websites** from March 2012 through February 2013. Mobile websites include special mobile versions of restaurant websites, as well as full versions of restaurant websites viewed on a smartphone or tablet. Mobile Metrix tracks a list of mobile websites four times per day over the course of a month. At the time of collection, we were unable to access data prior to March 2012, so we gathered 12 months of data starting from that point.

For each mobile website in our analysis, we report the following exposure measures:

- **Average monthly unique visitors** was calculated by adding total unique visitors reported each quarter from March 2012 through February 2013 divided by four (for four quarters).
- **Minutes per visitor per month** is the average amount of time per month that a visitor spent on a restaurant's website.

We also used comScore's Ad Metrix Mobile Report³⁵ to measure **mobile display ads**, or ads that appear at the top or bottom of third-party mobile web pages. Similar to internet display ads, they are graphic display ads (commonly accepted file types are GIF, Animated GIF, JPEG, and PNG) that click through to a page designated by the advertiser.

comScore's Ad Metrix Mobile product tracks display ads on more than 1,000 mobile URLs. This includes all sites linked to a mobile service provider's portal (effectively a carrier-specific home page for accessing the mobile internet). The company automatically collects data from these defined portal websites every six hours, or approximately 120 times per month. The **average monthly ad instance** measures how many times the application encounters a specific ad. Copies of the advertisements are captured and stored as a static image and classified four ways: by the company that owns the advertised product, the division responsible for the product, the product brand, and the product itself.

Restaurants also offer **smartphone applications**, or operating system specific (e.g., iOS and Android) applications that may be downloaded to smartphones and tablets and act as stand-alone programs. Using an iPhone, we downloaded all available applications offered by the restaurants in our analysis as of August 2013. We documented the features and

capabilities of each app, including ordering ability, restaurant locators, nutrition information, games, special offers, and social media connections.

Social media

We measured presence on three popular social media sites: Facebook, Twitter, and YouTube, for the 18 restaurants in our analysis. In addition, we examined the content of Facebook posts and restaurant activity on Twitter.

On **Facebook**, we recorded the number of **likes** for each fast food restaurant's page(s) in July 2013. We also collected Facebook **posts**, or the messages that restaurants post on their timelines, during a three-month period from December 1, 2012 to February 28, 2013. Using screen captures we conducted a content analysis of these posts. A codebook was developed and good inter-rater reliability was established prior to final coding of posts. Two coders identified the **menu items featured** in posts (including individual items, lines of items, and special menus); **engagement devices** used (i.e., showing a picture, asking a question, providing a link to an outside website, linking to a restaurant's own website, linking to Facebook events, contests, or sweepstakes, and watching a video); and **child-targeted content** (i.e., any content which spoke directly to a child, featured a kids' meal, animation, or any third-party characters, games, movies, TV shows, or celebrities that would appeal to children).

To measure marketing on **Twitter**, we recorded the number of followers for all of restaurants' page(s) in July 2013. **Followers** are users who have agreed to receive a restaurant's tweets through Twitter. In addition, we used Twitonomy to track activity on restaurants' main Twitter accounts from March to August 2013. Twitonomy is a web-based Twitter analytics program that analyzes the most recent 3,200 tweets of any user with a public Twitter account.³⁶ Twitter activities analyzed include average number of **tweets per day**, percent of tweets that were replies to users, and proportion of tweets that were retweeted or favorited by other users. **Replies** are direct responses by restaurants to tweets sent by other Twitter users. **Retweets** are restaurant tweets that users have re-posted for their own followers to see. Users have the ability to mark a tweet as a **favorite**, thereby saving it in special section on their profile page. A user's favorites can be viewed by other users, and indicates that the user finds the tweet of interest or value.

For **YouTube**, we recorded the following data as of July 2013: number of **subscribers** to each restaurant's YouTube channel, number of **video uploads** (i.e., videos available to view on the restaurant's channel), and **upload views** (i.e., number of times an uploaded video was viewed).

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