Published in final edited form as:

Am J Prev Med. 2017 November ; 53(5): 710–713. doi:10.1016/j.amepre.2017.06.017.

A School-based Brand Marketing Program's Adherence to Federal Nutrition Criteria

Alyssa J. Moran, MPH, RD¹, Eric B. Rimm, ScD^{1,2,3,4}, and Elsie M. Taveras, MD, MPH^{1,5}

¹Department of Nutrition, Harvard T.H. Chan School of Public Health, Boston, Massachusetts

²Department of Epidemiology, Harvard T.H. Chan School of Public Health, Boston, Massachusetts

³Channing Division of Network Medicine, Department of Medicine, Brigham and Women's Hospital, Boston, Massachusetts

⁴Harvard Medical School, Boston, Massachusetts

⁵Division of General Academic Pediatrics, Department of Pediatrics, MassGeneral Hospital for Children, Boston, Massachusetts

Abstract

Introduction—The Healthy, Hunger-Free Kids Act of 2010 gave the U.S. Department of Agriculture authority to regulate school wellness policies, which include nutritional standards for foods advertised in schools. Brand marketing programs, which encourage students to purchase a company's products in exchange for money or rewards, were not explicitly prohibited. This study assesses the nutritional quality of products participating in "Box Tops for Education" ("Box Tops"), one of the largest national brand marketing programs in schools.

Methods—Participating foods and beverages were obtained from the Box Tops product list and matched to nutrient information and ingredients from manufacturer websites in 2016 (N=949). Products were categorized as beverages ($n=13$), entrees ($n=171$), snacks ($n=677$), or fruits and vegetables exempt from the Smart Snacks in School Standards ("Smart Snacks" standards) ($n=88$) to assess the percentage that met the Smart Snacks standards.

Results—Of the foods participating in the Box Tops program, 69% of beverages, 26% of entrees, and 23% of snacks met the Smart Snacks standards. Most foods met the standards for trans fats (98%), calories (90%), and sugar (89%), but fewer met the requirements for sodium (60%). Noncompliant snacks contained more than twice the recommended sodium (mean=420mg, SD=191mg) and percent calories from saturated fat (mean=22%, SD=13%).

Conclusions—Fewer than one third of Box Tops foods met the Smart Snacks standards. Schools should consider whether the benefit of participation outweighs the harm of exposing kids to

Address correspondence to: Alyssa J. Moran, MPH, RD, Department of Nutrition, Harvard T.H. Chan School of Public Health, 677 Huntington Ave., Boston MA 02115. ajm978@mail.harvard.edu.

Publisher's Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

unhealthful marketing. Alternatively, schools could opt not to participate unless companies limit redeemable products to household items or healthful options meeting the Smart Snacks standards.

INTRODUCTION

Food and beverage companies heavily market their products to youth.¹ In 2009, \$1.8 billion was spent on youth-targeted food marketing, with the majority going towards nutrient-poor foods and beverages.² Greater exposure to unhealthy food advertising increases intake and preference for nutritionally poor foods, which increase risk of weight gain and diabetes among school-aged children.^{3–7} Thus, reducing youth exposure to food marketing is a promising strategy for improving dietary behaviors and health.^{8–10}

The Healthy, Hunger-Free Kids Act of 2010 sought to limit youth exposure to unhealthy food marketing by authorizing the U.S. Department of Agriculture (USDA) to revise regulations for school wellness policies.¹¹ Issued in 2016, the USDA's final rule required schools participating in the National School Lunch Program to implement policies that promote wellness, in part by prohibiting the sale or advertising of foods or beverages failing to meet federal nutrition standards (the "Smart Snacks" standards).¹² Smart Snacks closely aligns with The National Academies of Sciences, Engineering, and Medicine recommendations,¹³ and is more health-driven than many previous state and local policies.¹⁴ School-based brand marketing programs, which often require the purchase, promotion, or sale of a company's products in exchange for rewards, were not prohibited in the final rule, despite many commenters advocating for the inclusion of such programs.¹⁵

The purpose of this research is to assess the extent to which products sold under school-based brand marketing programs meet the Smart Snacks standards by examining the nutritional quality of products sold through Box Tops for Education ("Box Tops"). Box Tops was launched by General Mills in 1996 and is one of the largest incentive-based brand marketing programs, with more than 90,000 schools participating (www.boxtops4education.com).¹⁶ Schools earn money by collecting box tops from participating General Mills products. To date, no studies have assessed the healthfulness of products included in Box Tops or similar programs.

METHODS

The Box Tops product list was obtained from the General Mills website in July 2016 (www.boxtops4education.com/earn/participating-products). From July 2016 to December 2016, the authors recorded information from manufacturers' websites for each product on the list. For foods, information about gram weight per serving, calories (kcal), total fat (g), saturated fat (g), trans fat (g), sodium (mg), sugar (g), food group of the first listed ingredient (i.e., meat/meat alternate, dairy, fruit, vegetable, or whole grain), and presence of multiple food groups in the product was recorded. Products with identical descriptions in different packaging (e.g., frozen versus canned), were recorded as distinct items, but identical products in different sizes (e.g., twin packs) were recorded once for the smallest package size. Percent calories from fat was calculated using the Atwater general factors, by multiplying grams of fat/serving by 9 kilocalories, dividing by total kilocalories/serving, and

(www.bookitprogram.com), and Sunny D Book Spree have all encouraged parents, teachers, and students to purchase, consume, or otherwise promote products in exchange for cash or other educational rewards.^{19,20} Because the USDA does not prohibit schools from participating in brand marketing programs, wellness committee members and other stakeholders must decide if the financial benefits of participation outweigh the potential harm of marketing unhealthful foods to kids. On average, Box Tops has contributed less than \$7,000 per school over the life of the program.¹⁶ The effort of promoting and collecting Box Tops products, along with the potential lasting detrimental effects of children linking these brands with rewards, may not be worth the benefit.²¹

Limitations

Because foods were evaluated per serving rather than per package, and serving sizes reported on the package often underestimate portions consumed, these results likely overestimate the nutritional quality of Box Tops products.²²

CONCLUSIONS

The majority of Box Tops products do not meet the Smart Snacks standards, and schools should carefully consider whether the financial benefit of participation outweighs the potential harm. As an alternative, food companies could enhance their public image by modifying these programs. Box Tops could expand the number of household items, like garbage bags, that are eligible for rewards. Alternatively, Box Tops could limit rewards to only healthful foods and beverages. The program already includes just over 300 items, like frozen vegetables, meeting the Smart Snacks standards, and General Mills sells other healthful foods, like frozen fruit, that could be added to the program. Limiting redeemable products to healthful items would not only reduce the negative impact of food marketing to kids, but may have a positive influence on children's food preferences and dietary intake while still raising money for education.

Acknowledgments

The content is solely the responsibility of the authors and does not necessarily represent the official views of NIH. Dr. Taveras was supported by a K24 grant (DK105989) and Ms. Moran was supported by a T32 training grant (DK 007703-22) from NIH. AJM designed the study, analyzed and interpreted the data, and drafted the manuscript; EBR interpreted the data, provided critical manuscript revisions, and approved the final version of the manuscript; and EMT designed the study, interpreted the data, provided critical manuscript revisions, and approved the final version of the manuscript.

No financial disclosures were reported by the authors of this paper.

References

1. Nestle M. Food Marketing and childhood obesity – a matter of policy. *N Engl J Med*. 2006; 354:2527–2529. <https://doi.org/10.1056/NEJMp068014>. [PubMed: 16775233]
2. Federal Trade Commission. [Accessed January 19, 2017] A Review of Food Marketing to Children and Adolescents: Follow Up Report. 2012. www.ftc.gov/sites/default/files/documents/reports/review-food-marketing-children-and-adolescents-follow-report/121221foodmarketingreport.pdf
3. McGinnis, JM. Gootman, JA., Kraak, VI., editors. Food marketing to children and youth: threat or opportunity?. Washington, DC: National Academies Press; 2006. <https://doi.org/10.17226/11514>

4. Sadeghirad B, Duhaney T, Motaghipisheh S, Campbell NR, Johnston BC. Influence of unhealthy food and beverage marketing on children's dietary intake and preference: a systematic review and meta-analysis of randomized trials. *Obes Rev*. 2016; 17(10):945–959. <https://doi.org/10.1111/obr.12445>. [PubMed: 27427474]
5. Boyland EJ, Nolan S, Kelly B, et al. Advertising as a cue to consume: a systematic review and meta-analysis of the effects of acute exposure to unhealthy food and nonalcoholic beverage advertising on intake in children and adults. *Am J Clin Nutr*. 2016; 103(2):519–533. <https://doi.org/10.3945/ajcn.115.120022>. [PubMed: 26791177]
6. Andreyeva T, Kelly IR, Harris JL. Exposure to food advertising on television: associations with children's fast food and soft drink consumption and obesity. *Econ Hum Biol*. 2011; 9(3):221–233. <https://doi.org/10.1016/j.ehb.2011.02.004>. [PubMed: 21439918]
7. American Diabetes Association. Type 2 diabetes in children and adolescents. *Pediatrics*. 2000; 105(3):671–680. <https://doi.org/10.1542/peds.105.3.671>. [PubMed: 10699131]
8. American Heart Association, American Stroke Association. [Accessed January 20, 2017] Policy Position Statement on Food Advertising and Marketing Practices to Children. www.heart.org/idc/groups/heart-public/@wcm/@adv/documents/downloadable/ucm_306133.pdf
9. Committee on Communications, American Academy of Pediatrics. Children, adolescents, and advertising. *Pediatrics*. 2006; 118:2563–2569. <https://doi.org/10.1542/peds.2006-2698>. [PubMed: 17142547]
10. WHO. [Accessed January 20, 2017] Set of recommendations on the marketing of foods and non-alcoholic beverages to children. 2010. www.who.int/dietphysicalactivity/publications/recsmarketing/en/
11. Healthy Hunger-Free Kids Act of 2010, Public L. 111–296, 124 Stat. 3183, codified as amended at 42 U.S.C. Sec. 204.
12. Local School Wellness Policy Implementation under the Healthy, Hunger-Free Kids Act of 2010, 7 C.F.R. Sec. 210 (2016).
13. National Research Council. Nutrition Standards for Foods in Schools: Leading the Way Toward Healthier Youth. Washington, DC: The National Academies Press; 2007. <https://doi.org/10.17226/11899>
14. Competitive Foods and Beverages in U.S. Schools. Atlanta, GA: CDC; 2012. www.cdc.gov/healthyyouth/nutrition/pdf/compfoodsbooklet.pdf [Accessed May 4, 2017]
15. U.S. Department of Agriculture, Food and Nutrition Services. [Accessed January 20, 2017] Summary of Public Comments on the United States Department of Agriculture Food and Nutrition Services February 26, 2014 Local School Wellness Policy Implementation under the Healthy, Hunger-Free Kids Act of 2010 Proposed Rule, December 19, 2014. www.fns.usda.gov/sites/default/files/cn/LWP_Comment_Summary.pdf
16. [Accessed April 5, 2017] General Mills in the Community. 2015. www.generalmills.com/en/Company/publications
17. Merrill, AL., Watt, BK. Agriculture handbook. Washington, DC: U.S. Department of Agriculture, Agricultural Research Service; 1973. Energy value of foods: basis and derivation; p. 74
18. U.S. Department of Agriculture. [Accessed January 20, 2017] Help Make the Healthy Choice the Easy Choice for Kids at School – A Guide to Smart Snacks in School. www.fns.usda.gov/sites/default/files/tn/USDASmartSnacks.pdf
19. Strauss, V. [Accessed on January 20, 2017] Why educators are asking McDonald's to stop holding McTeachers' Nights. Washington Post. Oct 15. 2015 www.washingtonpost.com/news/answer-sheet/wp/2015/10/15/why-educators-are-asking-mcdonalds-to-stop-holding-mcteachers-nights/?utm_term=.986028626805
20. Sunny D. [Accessed January 20, 2017] Book Spree Letter to Parents. <http://promo.sunnyd.com/bookspree/en/parents.pdf>
21. Fedewar AL, Davis MC. How food as a reward is detrimental to children's health, learning, and behavior. *J Sch Health*. 2015; 85(9):648–658. <https://doi.org/10.1111/josh.12294>. [PubMed: 26201761]

22. [Accessed April 5, 2017] Changes to the Nutrition Facts Label. U.S. Food & Drug Administration web site. www.fda.gov/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/LabelingNutrition/ucm385663.htm

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Figure 1.

Proportion of foods participating in Box Tops for Education that meet the Smart Snacks in School standards.

Notes: Figure shows the proportion of all items, snacks, and entrees meeting all standards (“All standards”) and each individual guideline: (1) “First ingredient” – have a whole grain, fruit, vegetable, dairy product, or protein food as the first ingredient;^a (2) “Calories” – contain <200 calories (snack) or <350 calories (entrée); (3) “Sodium” – contain <200 mg sodium (snack) or <480 mg sodium (entrée); (4) “Total fat” – contain <35% of calories from total fat; (5) “Saturated fat” – contain <10% of calories from saturated fat; (6) “Trans fat” – contain <0.5 g trans fat; (7) “Sugar” – contain <35% sugar by weight. Reduced fat cheese, nuts, seeds, and nut/seed butters were exempt from the total fat and saturated fat standards. Mixes of only dried fruits and nuts and/or seeds, with no added sugars or fats, were exempt from the total fat, saturated fat, and sugar standards.

^aThe Smart Snacks in School Standards also allow products containing at least 0.25 cup fruit or vegetable, which could not be assessed in this study. Given the small serving sizes of these items, it is unlikely that a food would contain enough fruit or vegetable if not listed as the first ingredient. Thus, we classified foods as not meeting the “first ingredient” standard if the food did not list a whole grain, fruit, vegetable, dairy, or protein food as the first ingredient.

Table 1

Mean (SD) Nutrient Content of Box Tops for Education Products That Do Not Comply With Each of the Smart Snacks in School Standards

Product	Calories (kcal)	Total fat (% kcal)	Saturated fat (% kcal)	Trans fat (g)	Sodium (mg)	Sugar (% weight)
Snacks	242 (25.5)	51 (13.4)	22 (12.7)	1 (0.2)	420 (190.5)	44 (7.0)
Entrees	360 (0.0)	44 (7.4)	13 (2.8)	1 (0.0)	680 (89.7)	--