Evaluation of the Canadian Packaged Food Supply Using Health Canada’s Proposed Nutrient Criteria for Restricting Food and Beverage Marketing to Children

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Abstract: Federally mandated restrictions on food and beverage marketing to kids (M2K) have been re-introduced as a national public health priority in Canada by the newly elected government, following the failure to implement a similar policy first proposed in 2016. This study examined the extent to which Canadian packaged foods, including products already displaying M2K on the packaging, would be permitted to be marketed, based on the nutrient criteria for marketing restrictions defined by Health Canada (in December 2018) as part of the previous policy proposal. Products from the University of Toronto Food Label Information Program 2013 database (n = 15,200) were evaluated using Health Canada’s published criteria: thresholds for sodium, sugars and saturated fats that products cannot exceed in order to be M2K. The proportion of products exceeding no thresholds (i.e., permitted to be M2K), the number of thresholds exceeded, and the proportion exceeding each individual threshold were calculated overall and in the subsample of products displaying M2K on the packaging (n = 747). Overall, 18.0% of products would be permitted to be M2K, versus 2.7% of products displaying M2K. Sodium was the most exceeded threshold overall (57.5% of products), whereas sugars was the most exceeded by products displaying M2K (80.1%). Only 4.7% of all products versus 10.4% of products displaying M2K exceeded all three thresholds. These results highlight the importance of reintroducing federal regulations restricting M2K in Canada and including marketing on product packaging in the regulatory scope.

Keywords: marketing to children; food advertising; food marketing; marketing restrictions; nutrient profiling; nutrient composition; food policy; public health policy

1. Introduction

Marketing to kids (M2K) for foods and beverages higher in fat, sugars, and sodium (HFSS) is contributing to the poor dietary habits of children through its persuasive influence on their taste preferences, purchase requests and consumption patterns—ultimately intensifying the burden of childhood obesity [1,2]. It is estimated that globally, more than 150 million children are living with obesity, with this number expected to continue rising over the next decade [3]. In response to this public health problem, the World Health Organization (WHO) has made recommendations to limit the promotion of HFSS foods to children [4]. There have been varying degrees of implementation of these recommendations in different countries, with several countries having some form of voluntary, industry-led M2K restrictions (e.g., Australia, New Zealand, United States), and an increasing number of countries enforcing some version of mandatory M2K restrictions (e.g., Chile, United Kingdom, Sweden, Mexico, South Korea, Taiwan, Ireland) [5]. Furthermore, a number...
of countries have implemented mandatory front-of-pack labels and have prohibited foods bearing these labels from being M2K. In countries that have implemented mandatory federal restrictions, there is evidence suggesting a reduction in children’s exposure to marketing for HFSS foods. For example, in the United Kingdom, it is estimated that children saw 37% less HFSS television advertising following the implementation of restrictions and more recently, in Chile, almost 30% less HFSS breakfast cereals were found to display child-appealing marketing on their packaging post-implementation [6,7].

In Canada, there are mandatory M2K restrictions in the province of Québec, while in the rest of the country, the Canadian Children’s Food and Beverage Advertising Initiative (CAI), a voluntary, industry-led program is in place. However, both have been criticized for having limited effectiveness in restricting children’s exposure to HFSS foods due to loopholes such as limited or loosely defined criteria for the marketing media that are considered under the scope of the restrictions (e.g., lenient children’s viewership thresholds, or product packaging not being included), or in the case of the CAI, its voluntary nature [8–11].

In attempt to better protect Canadian children from the negative impacts of advertising, federally mandated restrictions on the marketing of HFSS foods to children under the age of 13 were proposed in 2016 as Bill S-228: the Child Health Protection Act, an amendment to the Canadian Food and Drugs Act [12]. The process of obtaining final parliamentary approval of the Bill was stalled prior to the 2019 Canadian federal election, and the Bill effectively died. Following his re-election, the Prime Minister has recently published his mandate letter to the Minister of Health, setting the implementation of new restrictions on the commercial marketing of foods and beverages to children as a key public health priority for Canada over the next four years [13].

Prior to the failure of Bill S-228, Health Canada released a draft “Guide to the Application of the Child-Health Protection Act (Bill S-228)” (henceforth referred to as the “Guide”) in December 2018 [14]. The Guide outlined the proposed regulatory approach for the implementation of the M2K restrictions, including a description of the types of advertising that would be considered “primarily directed at children” (e.g., through the setting or design of the advertising) and the types of foods that are appropriate to be advertised to children, based on the product’s nutritional composition [14]. For the latter, Health Canada proposed a set of nutrient criteria (i.e., a nutrient profile (NP) model), using thresholds for sugars, sodium and saturated fats that would determine which products would be permitted or restricted from being M2K [14]. While some studies to date have tested earlier versions of these nutrient criteria in limited samples of Canadian products displaying M2K on the packaging [15,16], the broad impact of the application of these thresholds on the entire Canadian food supply has yet to be investigated using the most up-to-date publicly available proposed nutrient criteria (i.e., those published in the draft Guide). Moreover, a thorough understanding of the potential impacts of the previously proposed restrictions could provide the empirical evidence needed to facilitate and expedite the development and implementation of the new M2K restrictions. Importantly as well, despite evidence that product packaging is children’s top source of exposure to food marketing [17], M2K on product packaging was not included under the scope of the proposed regulations described in the Guide, and would not be restricted. Evidence to support the expansion of the regulatory scope to include this important marketing medium is warranted.

The objectives of this study were therefore to evaluate Canadian packaged food products, including those that currently display M2K on the packaging, in terms of the product’s eligibility to be M2K, according to Health Canada’s previously proposed nutrient criteria for advertising restrictions, if the legislation were to include marketing on product packaging.

2. Materials and Methods

Analyses were conducted using the University of Toronto Food Label Information Program (FLIP) 2013 database, described in detail elsewhere [18]. Briefly, FLIP 2013 is a branded food composition database containing nutritional information for 15,342 unique food products from the four largest national grocery retailers in Canada (Loblaws, Metro, Sobeys, and Safeway), representing approximately
75% of the Canadian retail food market share at the time of collection. FLIP contains information such as a product’s Nutrition Facts table (NFt), ingredients list, price, company and brand name, as well as photos of all sides of product packages. Nutritional information was recorded for products in the “as sold” form and calculated for the “as consumed” form, when necessary (e.g., condensed soup). Foods in FLIP 2013 were classified into 24 major and 153 minor categories as defined in the Table of Reference Amounts for Foods (TRA) in the Food and Drug Regulations, which provides detailed examples of the types of foods in each category and subcategory [19]. The identification of products displaying M2K on the packaging has been previously determined in FLIP 2013, based on the display of at least one of the following persuasive marketing techniques: children’s product lines (e.g., junior, mini); child-appealing lettering, images or graphics; allusions to fun or play; unconventional flavors, colors, or shapes; toys, coupons, prizes, or contests; games; and child-appealing characters [20].

In order to evaluate products’ eligibility to be M2K, this study used the latest publicly available nutrient criteria released by Health Canada in December 2018 in the draft Guide [14]. These criteria require the assessment of products on a nutrient-by-nutrient basis by using existing “low in” nutrient content claim (NCC) thresholds [21] for products containing “sugars”, “added sodium” or “added fats”. In other words, only products that contained “sugars” were evaluated according to the “low in sugars” NCC threshold, only products that contained “added sodium” were evaluated according to the “low in sodium” NCC threshold, and only products that contained “added fat” were evaluated according to the “low in saturated fat” NCC threshold.

The draft Guide defines “sugars” as: “sugars, except those naturally present in fruits or vegetables—whole or cut—that are fresh, frozen, canned or dried; dairy products; grains; legumes; or nuts and seeds” [14]. This definition is consistent with the WHO definition of free sugars [22], the presence of which has been previously determined for products in FLIP 2013, and was used in the current analyses [18]. Therefore, only products containing any free sugars ingredient were evaluated using the “low in sugars” NCC threshold and those without free sugars ingredients were considered “exempt” from evaluation.

“Added sodium” is defined as: “salt, other sodium salts or ingredients that contain sodium that functionally substitute for added salt”, when added to a product [14]. This definition is consistent with the criteria for a product to carry a “no added sodium” or “no added salt” NCC [21]. Based on this definition, product ingredient lists were analyzed for the presence of “added sodium” and products containing “added sodium” were evaluated using the “low in sodium” NCC threshold and those without added sodium were considered “exempt” from evaluation. If the product was a stand-alone salt product (e.g., celery salt, table salt, garlic salt) and contained no other added sources of sodium, this product was not considered to contain “added sodium”, as per the criteria outlined in the Guide. However, where these products were added to other products, they were considered an “added sodium” ingredient (e.g., garlic salt added to chicken nuggets).

Lastly, the draft Guide defines “added fat” as: “fats or oils set out in Division 9 of the Food and Drug Regulations; butter; ghee; or ingredients that contain added fats or oils, butter, or ghee” when added to a product. This definition is consistent with the “no added fat” NCC [21]. Based on this definition, product ingredient lists were analyzed for the presence of “added fat” and products containing “added fat” ingredients were evaluated under the “low in saturated fat” NCC threshold and those without “added fat” were considered “exempt” from evaluation. If the product was a stand-alone fat or oil product (e.g., olive oil, butter) it was not considered to be a source of “added” fat.

Table 1 shows the “low in” NCC thresholds under which each product was evaluated. For products requiring preparation (e.g., pudding mix), the thresholds were applied to the “as consumed” nutrient information, otherwise, “as sold” nutrient values were used. The nutrient content of a product was evaluated using the largest of either the TRA reference amount or the manufacturer stated serving size. Additionally, the draft Guide outlines different nutrient thresholds for foods vs. main dishes due to the larger reference amounts of main dish product; thus, “Combination dishes” in TRA subcategories N.1 and N.2 [19] were classified as “main dishes” and all other products were classified as “foods”. Products exceeding any of the respective thresholds under which they were evaluated would be restricted from...
M2K. Products which were exempt from all thresholds or did not exceed any thresholds would be permitted to be M2K.

Table 1. Summary of proposed “low in” thresholds for sugars, sodium and saturated fats a,b.

| Foods (Other than Main Dishes with a Reference Amount (RA) above 200 g) | Main Dishes (with an RA above 200 g) |
|---|---|
| ≤5 g total sugar per RA or Serving Size (SS), whichever is the greater OR per 50 g of the product, if the RA of the product is 30 g or 30 mL or less | ≤5 g total sugar per 100 g |
| ≤140 mg sodium per RA or SS, whichever is the greater OR per 50 g of the product, if the RA of the product is 30 g or 30 mL or less | ≤140 mg sodium per 100 g |
| ≤2 g saturated fatty acid (SFA) + trans fatty acid (TFA) per RA or SS, whichever is the greater and ≤15% energy from the sum of SFA+TFA | ≤2 g SFA + TFA per 100 g and ≤ 15% energy from the sum of SFA+TFA |

a Proposed thresholds for sugars, sodium and saturated fats levels are based on existing Food and Drug Regulations thresholds for “low in” nutrient content claims [21]. b If a product had added sugars, sodium or fats identified in the ingredients list, it was subject to evaluation under the “low in” threshold for the identified “added” nutrient. If a product exceeded any threshold, it would be restricted from M2K. Products with no added sugars, sodium or fats were exempted from the threshold for that nutrient. When it was impossible to determine if the product was below the threshold for all relevant nutrients (i.e., due to missing nutrient information), the product was excluded from the analysis.

A total of 141 products were excluded from the analyses because they were products indicated for special dietary use (i.e., TRA category X—Meal replacements, n = 55), because of errors in nutrient declarations in the NFt, as determined by Atwater calculations that varied >20% from declared caloric values (n = 55), or because products had missing nutrient information for one or more of the three relevant nutrients (n = 31). The final analysis included 15,200 products from 22 food categories, and the sub-analysis of products currently displaying M2K on the packaging included 747 products in 16 food categories, representing 4.9% of the total analytic sample.

The number and proportion of products that would be permitted and restricted from M2K were calculated. The number and proportion of products exceeding the “low in” threshold for each individual nutrient as well as the total number of thresholds a product exceeded were also calculated. Analyses were completed for the entire sample, as well as for the subsample of products displaying M2K on the package, for all major TRA food categories.

3. Results

Overall, 13.4% of packaged food products would be exempt from all “low in” thresholds (i.e., did not contain any “sugars”, “added sodium” or “added fats”), and 4.5% of products did not exceed any “low in” threshold, for a total 18.0% of products that would be permitted to be M2K (Table 2). In the sub-sample of products displaying M2K on the packaging, 0.9% of products would be exempt from all nutrient thresholds and 1.7% did not exceed any of the thresholds. Thus, 97.3% (n = 727) of foods displaying M2K on the packaging would be restricted from M2K.
Table 2. Number (n) and proportion (%) of products that would be permitted or restricted from marketing to children (M2K).

| Food Category a | Analytic Sample b | Total Products Analyzed | Permitted to Be M2K | Restricted from M2K |
|-----------------|-------------------|-------------------------|---------------------|---------------------|
|                 |                   | n          | % d                   | n          | % e       | n          | % e       | n          | % e       |
| Total           | All               | 15200     | 100.0                | 2039      | 13.4     | 691        | 4.5       | 2730       | 18.0      | 12470      | 82.0      |
|                 | M2K               | 747       | 100.0                | 7         | 0.9      | 13         | 1.7       | 20         | 2.7       | 727        | 97.3      |
| Bakery Products (e.g., bread, cookies, grain-based bars) | All | 2085 | 13.7 | 9 | 0.4 | 70 | 3.4 | 79 | 3.8 | 2006 | 96.2 |
|                 | M2K               | 173       | 23.2                 | 0         | 0.0      | 6          | 3.5       | 6          | 3.5       | 167        | 96.5      |
| Beverages (e.g., carbonated and non-carbonated drinks) | All | 482 | 3.2 | 122 | 25.3 | 77 | 16.0 | 199 | 41.3 | 283 | 58.7 |
|                 | M2K               | 11        | 1.5                  | 0         | 0.0      | 1          | 9.1       | 1          | 9.1       | 10         | 90.9      |
| Cereals and other grain products (e.g., breakfast cereals, pasta) | All | 1028 | 6.8 | 638 | 62.1 | 23 | 2.2 | 661 | 64.3 | 367 | 35.7 |
|                 | M2K               | 51        | 6.8                  | 1         | 2.0      | 0          | 0.0       | 1          | 2.0       | 50         | 98.0      |
| Dairy products and substitutes (e.g., milk, yogurt) | All | 1221 | 8.0 | 135 | 11.1 | 115 | 9.4 | 250 | 20.5 | 971 | 79.5 |
|                 | M2K               | 74        | 9.9                  | 0         | 0.0      | 0          | 0.0       | 0          | 0.0       | 74         | 100.0     |
| Desserts (e.g., ice cream, puddings) | All | 827 | 5.4 | 5 | 0.6 | 31 | 3.7 | 36 | 4.4 | 791 | 95.6 |
|                 | M2K               | 144       | 19.3                 | 0         | 0.0      | 5          | 3.5       | 5          | 3.5       | 139        | 96.5      |
| Dessert toppings and fillings (e.g., cake frosting) | All | 104 | 0.7 | 0 | 0.0 | 1 | 1.0 | 1 | 1.0 | 103 | 99.0 |
|                 | M2K               | 7         | 0.9                  | 0         | 0.0      | 0          | 0.0       | 0          | 0.0       | 7          | 100.0     |
| Eggs and egg substitutes (e.g., omelet mix) | All | 56 | 0.4 | 47 | 83.9 | 0 | 0.0 | 47 | 83.9 | 9 | 16.1 |
|                 | M2K               | 0         | 0.0                  | 0         | 0.0      | 0          | 0.0       | 0          | 0.0       | 0          | 0.0       |
| Fats and oils (e.g., dressings, mayonnaise) | All | 535 | 3.5 | 168 | 31.4 | 11 | 2.1 | 179 | 33.5 | 356 | 66.5 |
|                 | M2K               | 0         | 0.0                  | 0         | 0.0      | 0          | 0.0       | 0          | 0.0       | 0          | 0.0       |
| Marine and freshwater animals (e.g., fish sticks, shrimp) | All | 440 | 2.9 | 56 | 12.7 | 35 | 8.0 | 91 | 20.7 | 349 | 79.3 |
|                 | M2K               | 2         | 0.3                  | 0         | 0.0      | 0          | 0.0       | 0          | 0.0       | 2          | 100.0     |
| Food Category a | Analytic Sample b | Total Products Analyzed | Permitted to Be M2K | Restricted from M2K |
|-----------------|------------------|------------------------|---------------------|---------------------|
|                 | n    | % d  | n  | % e  | n  | % e  | n  | % e |
| Fruit and fruit juices (e.g., applesauce, canned fruit) | All 1088 7.2 | 175 16.1 | 48 4.4 | 223 20.5 | 865 79.5 |
|                 | M2K 58 7.8 | 5 8.6 | 0 0.0 | 5 8.6 | 53 91.4 |
| Legumes (e.g., beans, tofu) | All 180 1.2 | 104 57.8 | 25 13.9 | 129 71.7 | 51 28.3 |
|                 | M2K 0 0.0 | | | | |
| Meat, poultry, their products and substitutes (e.g., chicken nuggets, sandwich meats) | All 899 5.9 | 15 1.7 | 1 0.1 | 16 1.8 | 883 98.2 |
|                 | M2K 9 1.2 | 0 0.0 | 0 0.0 | 0 0.0 | 9 100.0 |
| Miscellaneous category (e.g., spices, culinary ingredients) | All 473 3.1 | 64 13.5 | 37 7.8 | 101 21.4 | 372 78.6 |
|                 | M2K 14 1.9 | 0 0.0 | 0 0.0 | 0 0.0 | 14 100.0 |
| Combination fishes (e.g., frozen burritos, pizza) | All 1304 8.6 | 0 0.0 | 31 2.4 | 31 2.4 | 1273 97.6 |
|                 | M2K 64 8.6 | 0 0.0 | 0 0.0 | 0 0.0 | 64 100.0 |
| Nuts and seeds (e.g., peanut butter) | All 210 1.4 | 160 76.2 | 13 6.2 | 173 82.4 | 37 17.6 |
|                 | M2K 10 1.3 | 0 0.0 | 0 0.0 | 0 0.0 | 10 100.0 |
| Potatoes, sweet potatoes and yams (e.g., French fries) | All 140 0.9 | 4 2.9 | 21 15.0 | 25 17.9 | 115 82.1 |
|                 | M2K 4 0.5 | 0 0.0 | 0 0.0 | 0 0.0 | 4 100.0 |
| Salads (e.g., Greek or macaroni) | All 70 0.5 | 0 0.0 | 0 0.0 | 0 0.0 | 70 100.0 |
|                 | M2K 0 0.0 | | | | |
| Sauces, dips, gravies and condiments (e.g., ketchup, hummus) | All 1224 8.1 | 56 4.6 | 18 1.5 | 74 6.0 | 1150 94.0 |
|                 | M2K 0 0.0 | | | | |
| Snacks (e.g., popcorn, chips) | All 813 5.3 | 15 1.8 | 57 7.0 | 72 8.9 | 741 91.1 |
|                 | M2K 41 5.5 | 0 0.0 | 1 2.4 | 1 2.4 | 40 97.6 |
Table 2. Cont.

| Food Category                        | Analytic Sample b | Total Products Analyzed | Permitted to Be M2K | Restricted from M2K |
|--------------------------------------|-------------------|-------------------------|---------------------|--------------------|
|                                      |                   |                         | Exempt from Evaluation c | Not Exempt from Evaluation and Does Not Exceed “Low in” Thresholds | Total Products Permitted for M2K | Not Exempt from Evaluation and Exceeds “Low in” Thresholds |
|                                      | n % d             | n % e                   | n % e               | n % e              | n % e              | n % e |
| Soups (i.e., all varieties)          |                   |                         |                     |                    |                    |       |
| All                                  | 454 3.0           | 1 0.2                   | 18 4.0              | 19 4.2             | 435 95.8           |       |
| M2K                                  | 1 0.1             | 0 0.0                   | 0 0.0               | 0 0.0              | 1 100.0            |       |
| Sugars and sweets (e.g., confectionary, chocolate, syrup) |                   |                         |                     |                    |                    |       |
| All                                  | 734 4.8           | 5 0.7                   | 5 0.7               | 10 1.4             | 724 98.6           |       |
| M2K                                  | 84 11.2           | 1 1.2                   | 0 0.0               | 1 1.2              | 83 98.8            |       |
| Vegetables (e.g., canned or frozen)  |                   |                         |                     |                    |                    |       |
| All                                  | 833 5.5           | 260 31.2                | 54 6.5              | 314 37.7           | 519 62.3           |       |
| M2K                                  | 0 0.0             |                         |                     |                    |                    |       |

a Foods in FLIP 2013 were classified into food categories as defined in the Table of Reference Amounts for Foods (TRA) in the Food and Drug Regulations [19]; b All = all products in FLIP (n = 15,200); M2K = products displaying child-appealing marketing on the packaging (n = 747); c Products that contained no “sugars”, “added sodium” or “added fat” were exempted from all “low in” thresholds; d Percentage of total products analyzed in the analytic sample (i.e., out of n = 15,200 for “All” and out of n = 747 for “M2K”), note: some rows may sum to 100% plus or minus 0.1%, due to rounding; e Percentage of total products analyzed in that food category, in that analytic sample.
Out of all products, very few food categories (4/22 categories) had greater than 50% of products that would be permitted to be M2K: eggs and egg substitutes (83.9%), nuts and seeds (82.4%), legumes (71.7%) and cereals and grain products (64.3%). Not surprisingly, these categories also had high proportions of products that would be exempt from evaluation under the “low in” thresholds due to the absence of added sugars, sodium or fats. However, almost half of all food categories (10/22 categories) had greater than 90% of products that would be restricted from M2K, including: packaged salads (100%); dessert toppings and fillings (99.0%); sugars and sweets (98.6%); meat, poultry, their products and substitutes (98.2%); combination dishes (97.6%); bakery products (96.2%); soups (95.8%); desserts (95.6%); sauces, dips, gravies and condiments (94.0%); and snacks (91.1%).

For products currently displaying M2K on the packaging, >90% of products in all food categories would be restricted from M2K, and in most (9/16) food categories, 100% of products would be restricted.

When examining the number of individual thresholds that were exceeded, in the overall sample, 18.0% of products did not exceed any “low in” threshold, 53.3% of products exceeded one threshold, 24.1% exceeded two thresholds, and 4.7% exceeded all three thresholds (Table 3). Categories that had the most products exceeding all three nutrient thresholds were bakery products (21.5%) and packaged salads (14.3%). For products displaying M2K on the packaging, 2.7% of products did not exceed any “low in” threshold, 53.1% of products exceeded 1 threshold, 33.7% exceeded 2, and 10.4% exceeded all three thresholds. In this sub-sample, bakery products, combination dishes, and beverages had the most products exceeding all three thresholds (27.2%, 21.9% and 18.2%, respectively).

Overall, across all food categories, 38.9% exceeded the sugars threshold, 57.5% of products exceeded the sodium threshold, and 19.1% exceeded the saturated fat threshold (Table 4). Saturated fats also had the highest proportion of products exempt from evaluation (50.2%). Not surprisingly, the categories with the highest proportion of products that would exceed “low in” thresholds varied by nutrient.

Of foods currently displaying M2K on the packaging, 43.6% exceeded the sodium threshold, 80.1% of products exceeded the sugars threshold, and 28.2% exceeded the saturated fat threshold. Like the main analysis, saturated fat also had the highest proportion of products that would be exempt from evaluation under that threshold (39.6%), and the categories most exceeding each threshold varied by nutrient.
Table 3. Number (n) and proportion (%) of products exceeding zero, one, two or three “low in” thresholds.

| Food Category b | Analytic Sample c | Total Products Analyzed | Number of “Low in” Thresholds Exceeded a |
|-----------------|-------------------|-------------------------|----------------------------------------|
|                 | n % d             | n % e                   | n % e                                  |
|                 | n % e             | n % e                   | 0 1 2 3                                 |
| Total           |                   |                         |                                        |
| All             | 15200 100.0       | 2730 18.0               | 8097 53.3                               |
| M2K             | 747 100.0         | 20 2.7                  | 397 53.1                                |
| Bakery Products (e.g., bread, cookies, grain-based bars) | 2085 13.7 | 79 3.8 | 956 45.9 | 602 28.9 | 448 21.5 |
| M2K             | 173 23.2          | 6 3.5                   | 51 29.5                                |
| Beverages (e.g., carbonated and non-carbonated drinks) | 482 3.2 | 199 41.3 | 222 46.1 | 49 10.2 | 12 2.5 |
| M2K             | 11 1.5            | 1 9.1                   | 7 63.6                                 |
| Cereals and other grain products (e.g., breakfast cereals, pasta) | 1028 6.8 | 661 64.3 | 149 14.5 | 210 20.4 | 8 0.8 |
| M2K             | 51 6.8            | 1 2.0                   | 14 27.5                                |
| Dairy products and substitutes (e.g., milk, yogurt) | 1221 8.0 | 250 20.5 | 857 70.2 | 104 8.5 | 10 0.8 |
| M2K             | 74 9.9            | 0 0.0                   | 60 81.1                                |
| Desserts (e.g., ice cream, puddings) | 827 5.4 | 36 4.4 | 400 48.4 | 344 41.6 | 47 5.7 |
| M2K             | 144 19.3          | 5 3.5                   | 63 43.8                                |
| Dessert toppings and fillings (e.g., cake frosting) | 104 0.7 | 1 1.0 | 73 70.2 | 30 28.8 | 0 0.0 |
| M2K             | 7 0.9             | 0 0.0                   | 6 85.7                                 |
| Eggs and egg substitutes (e.g., omelet mix) | 56 0.4 | 47 83.9 | 9 16.1 | 0 0.0 | 0 0.0 |
| M2K             | 0 0.0             |                         |                                        |
| Fats and oils (e.g., dressings, mayonnaise) | 535 3.5 | 179 33.5 | 225 42.1 | 129 24.1 | 2 0.4 |
| M2K             | 0 0.0             |                         |                                        |
| Marine and freshwater animals (e.g., fish sticks, shrimp) | 440 2.9 | 91 20.7 | 287 65.2 | 56 12.7 | 6 1.4 |
| M2K             | 2 0.3             | 0 0.0                   | 2 100.0                                |
| Fruit and fruit juices (e.g., applesauce, canned fruit) | 1088 7.2 | 223 20.5 | 848 77.9 | 17 1.6 | 0 0.0 |
| M2K             | 58 7.8            | 5 8.6                   | 53 91.4                                |
| Legumes (e.g., beans, tofu) | 180 1.2 | 129 71.7 | 50 27.8 | 1 0.6 | 0 0.0 |
| M2K             | 0 0.0             |                         |                                        |
Table 3. Cont.

| Food Category b | Analytic Sample c | Total Products Analyzed | Number of “Low in” Thresholds Exceeded a |
|-----------------|-------------------|-------------------------|-----------------------------------------|
|                 |                   | n d                     | 0 1 2 3                                |
| Meat, poultry, their products and substitutes (e.g., chicken nuggets, sandwich meats) | All | 899 5.9 | 16 1.8 | 710 79.0 | 142 15.8 | 31 3.4 |
|                 | M2K | 9 1.2 | 0 0.0 | 6 66.7 | 3 33.3 | 0 0.0 |
| Miscellaneous category (e.g., spices, culinary ingredients) | All | 473 3.1 | 101 21.4 | 201 42.5 | 159 33.6 | 12 2.5 |
|                 | M2K | 14 1.9 | 0 0.0 | 6 42.9 | 7 50.0 | 1 7.1 |
| Combination Dishes (e.g., frozen burritos, pizza) | All | 1304 8.6 | 31 2.4 | 672 51.5 | 547 41.9 | 54 4.1 |
|                 | M2K | 64 8.6 | 0 0.0 | 23 35.9 | 27 42.2 | 14 21.9 |
| Nuts and seeds (e.g., peanut butter) | All | 210 1.4 | 173 82.4 | 21 10.0 | 16 7.6 | 0 0.0 |
|                 | M2K | 10 1.3 | 0 0.0 | 5 50.0 | 5 50.0 | 0 0.0 |
| Potatoes, sweet potatoes and yams (e.g., French fries) | All | 140 0.9 | 25 17.9 | 89 63.6 | 26 18.6 | 0 0.0 |
|                 | M2K | 4 0.5 | 0 0.0 | 3 75.0 | 1 25.0 | 0 0.0 |
| Salads (e.g., Greek or macaroni) | All | 70 0.5 | 0 0.0 | 36 51.4 | 24 34.3 | 10 14.3 |
|                 | M2K | 0 0.0 | 0 0.0 | 0 0.0 | 0 0.0 | 0 0.0 |
| Sauces, dips, gravies and condiments (e.g., ketchup, hummus) | All | 1224 8.1 | 74 6.0 | 624 51.0 | 502 41.0 | 24 2.0 |
|                 | M2K | 0 0.0 | 0 0.0 | 0 0.0 | 0 0.0 | 0 0.0 |
| Snacks (e.g., popcorn, chips) | All | 813 5.3 | 72 8.9 | 500 61.5 | 208 25.6 | 33 4.1 |
|                 | M2K | 41 5.5 | 1 2.4 | 30 73.2 | 8 19.5 | 2 4.9 |
| Soups (i.e., all varieties) | All | 454 3.0 | 19 4.2 | 278 61.2 | 150 33.0 | 7 1.5 |
|                 | M2K | 1 0.1 | 0 0.0 | 1 100.0 | 0 0.0 | 0 0.0 |
| Sugars and sweets (e.g., confectionary, chocolate, syrup) | All | 734 4.8 | 10 1.4 | 461 62.8 | 256 34.9 | 7 1.0 |
|                 | M2K | 84 11.2 | 1 1.2 | 67 79.8 | 15 17.9 | 1 1.2 |
| Vegetables (e.g., canned or frozen) | All | 833 5.5 | 314 37.7 | 429 51.5 | 90 10.8 | 0 0.0 |
|                 | M2K | 0 0.0 | 0 0.0 | 0 0.0 | 0 0.0 | 0 0.0 |

a Total number of nutrient thresholds a single products exceeded for sugars, sodium and saturated fats; b Foods in FLIP 2013 were classified into food categories as defined in the Table of Reference Amounts for Foods (TRA) in the Food and Drug Regulations [19]; c All = all products in FLIP (n = 15,200); M2K = products displaying child-appealing marketing on the packaging (n = 747); d Percentage of total products analyzed in the analytic sample (i.e., out of n = 15,200 for “All” and out of n = 747 for “M2K”), note: some rows may sum to 100% plus or minus 0.1%, due to rounding; e Percentage of total products analyzed in that food category, in that analytic sample.
Table 4. Number (n) and proportion (%) of products exceeding each nutrient threshold.

| Food Category b | Analytic Sample c | Total Products Analyzed | Sugars a | | Sodium a | | Saturated Fat a |
|-----------------|-------------------|-------------------------|---------|---------|---------|---------|---------|
|                 |                   |                        | Exempt from | Not Exempt, | Exempt from | Not Exempt, | Exempt from |
|                 |                   |                        | Evaluation d | Does Not | "Low in" | Does Not | "Low in" | "Low in" |
|                 |                   |                        | n | % e | n | % f | n | % f | n | % f | n | % f |
| Total           |                   |                        | All | 15200 | 100.0 | 5286 | 34.8 | 3995 | 34.8 | 5911 | 38.9 | 4264 | 28.1 | 2195 | 14.4 | 8736 | 57.5 | 7623 | 50.2 | 4660 | 30.7 | 2907 | 19.1 |
| Bakery Products (e.g., cookies, grain-based bars) | M2K | 747 | 100.0 | 61 | 8.2 | 88 | 11.8 | 598 | 80.1 | 194 | 26.0 | 227 | 30.4 | 326 | 43.6 | 296 | 39.6 | 240 | 32.1 | 211 | 28.2 |
| Beverages (e.g., carbonated and non-carbonated drinks) | M2K | 173 | 25.2 | 9 | 5.2 | 22 | 12.7 | 142 | 82.1 | 1 | 0.6 | 52 | 30.1 | 120 | 69.4 | 0 | 0.0 | 105 | 60.7 | 68 | 39.3 |
| Cereals and other grain products (e.g., breakfast cereals, pasta) | M2K | 51 | 6.8 | 1 | 2.0 | 7 | 13.7 | 4 | 7.8 | 40 | 78.4 | 25 | 49.0 | 0 | 0.0 | 5 | 100.0 | 0 | 0.0 | 3 | 27.3 |
| Dairy products and substitutes (e.g., milk, yogurt) | M2K | 74 | 9.9 | 12 | 16.2 | 4 | 5.4 | 58 | 78.4 | 37 | 50.0 | 8 | 10.8 | 29 | 39.2 | 73 | 98.6 | 0 | 0.0 | 1 | 1.4 |
| Desserts (e.g., ice cream, puddings) | M2K | 144 | 19.3 | 3 | 2.1 | 4 | 28.2 | 137 | 95.1 | 47 | 32.6 | 76 | 52.8 | 21 | 14.6 | 64 | 44.4 | 12 | 8.3 | 68 | 47.2 |
| Dessert toppings and fillings (e.g., cake frosting) | M2K | 7 | 0.9 | 0 | 0.0 | 0 | 0.0 | 7 | 100.0 | 5 | 71.4 | 2 | 28.6 | 0 | 0.0 | 5 | 71.4 | 1 | 14.3 | 1 | 14.3 |
| Eggs and egg substitutes (e.g., omelet mix) | M2K | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Fats and oils (e.g., dressings, mayonnaise) | M2K | 535 | 3.5 | 269 | 50.3 | 170 | 31.8 | 96 | 17.9 | 180 | 33.6 | 9 | 1.7 | 346 | 64.7 | 286 | 53.5 | 202 | 37.8 | 47 | 8.8 |
| Marine and fresh water animals (e.g., fish sticks, shrimp) | M2K | 440 | 2.9 | 249 | 56.6 | 167 | 38.0 | 24 | 5.5 | 68 | 15.5 | 25 | 5.7 | 347 | 78.9 | 246 | 55.9 | 148 | 33.6 | 46 | 10.5 |
| Fruit and fruit juices (e.g., applesauce, canned fruit) | M2K | 58 | 7.8 | 5 | 8.6 | 0 | 0.0 | 53 | 91.4 | 40 | 69.0 | 18 | 31.0 | 0 | 0.0 | 58 | 100.0 | 0 | 0.0 | 0 | 0.0 |
| Legumes (e.g., beans, tofu) | M2K | 180 | 1.2 | 174 | 96.7 | 2 | 11.1 | 4 | 22.2 | 108 | 60.0 | 24 | 13.3 | 48 | 26.7 | 178 | 98.9 | 2 | 1.1 | 0 | 0.0 |
| Meat, poultry, their products and substitutes (e.g., chicken nuggets, sandwich meats) | M2K | 899 | 5.9 | 201 | 22.4 | 614 | 68.3 | 84 | 9.3 | 15 | 1.7 | 1 | 0.1 | 883 | 98.2 | 605 | 67.3 | 174 | 19.4 | 120 | 13.3 |
| Miscellaneous category (e.g., spices, culinary ingredients) | M2K | 473 | 3.1 | 151 | 31.9 | 129 | 27.3 | 193 | 40.8 | 90 | 19.0 | 44 | 9.3 | 339 | 71.7 | 214 | 45.2 | 236 | 49.9 | 23 | 4.9 |

**Footnotes:**
- a Exempt from Evaluation
- b Food Category
- c Analytic Sample
- d Not Exempt from Evaluation
- e Number
- f Proportion (%)
| Food Category b | Analytic Sample c | Total Products Analyzed | Sugars a | Sodium a | Saturated Fat a |
|----------------|-------------------|------------------------|----------|----------|-----------------|
|                |                   |                        | Exempt from Evaluation d | Not Exempt, Does Not Exceed “Low in” Threshold | Not Exempt, Exceeds “Low in” Threshold | Exempt from Evaluation d | Not Exempt, Does Not Exceed “Low in” Threshold | Not Exempt, Exceeds “Low in” Threshold |
|                | n                  | % e                   | n          | % f       | n          | % f       | n          | % f       | n          | % f       | n          | % f       | n          | % f       |
| Combination Dishes (e.g., frozen burritos, pizza) | All | 1304 | 8.6 | 216 | 16.6 | 946 | 72.5 | 141 | 10.8 | 5 | 0.4 | 35 | 2.7 | 1264 | 96.9 | 111 | 8.5 | 662 | 50.8 | 523 | 40.1 |
| | M2K | 64 | 8.6 | 9 | 14.1 | 38 | 59.4 | 17 | 26.6 | 0 | 0.0 | 0 | 0.0 | 64 | 100.0 | 5 | 7.8 | 21 | 32.8 | 38 | 59.4 |
| Nuts and seeds (e.g., peanut butter) | All | 210 | 1.4 | 167 | 79.5 | 20 | 9.5 | 23 | 11.0 | 171 | 81.4 | 10 | 4.8 | 29 | 13.8 | 164 | 78.1 | 45 | 21.4 | 1 | 0.5 |
| | M2K | 10 | 1.3 | 0 | 0.0 | 2 | 20.0 | 8 | 80.0 | 1 | 10.0 | 2 | 20.0 | 7 | 70.0 | 1 | 10.0 | 9 | 90.0 | 0 | 0.0 |
| Potatoes, sweet potatoes and yams (e.g., French fries) | All | 140 | 0.9 | 86 | 61.4 | 48 | 34.3 | 6 | 4.3 | 5 | 3.6 | 22 | 15.7 | 113 | 80.7 | 26 | 18.6 | 92 | 65.7 | 22 | 15.7 |
| | M2K | 4 | 0.5 | 4 | 100.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 4 | 100.0 | 0 | 0.0 | 3 | 75.0 | 1 | 25.0 |
| Salads (e.g., Greek or macaroni) | All | 70 | 0.5 | 10 | 14.3 | 32 | 45.7 | 26 | 40.0 | 1 | 1.4 | 3 | 4.3 | 66 | 94.3 | 3 | 4.3 | 47 | 67.1 | 20 | 28.6 |
| | M2K | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Sauces, dips, gravies and condiments (e.g., ketchup, hummus) | All | 1224 | 8.1 | 374 | 30.6 | 397 | 32.4 | 453 | 37.0 | 83 | 6.8 | 45 | 3.7 | 1096 | 89.5 | 545 | 44.5 | 528 | 43.1 | 151 | 12.3 |
| | M2K | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Snacks (e.g., popcorn, chips) | All | 813 | 5.3 | 347 | 42.7 | 299 | 36.8 | 167 | 20.5 | 133 | 16.4 | 123 | 15.1 | 557 | 68.5 | 74 | 9.1 | 448 | 55.1 | 291 | 35.8 |
| | M2K | 41 | 5.5 | 10 | 24.4 | 6 | 14.6 | 25 | 61.0 | 7 | 17.1 | 17 | 41.5 | 17 | 41.5 | 5 | 12.2 | 26 | 63.4 | 10 | 24.4 |
| Soups (i.e., all varieties) | All | 454 | 3.0 | 104 | 22.9 | 288 | 63.4 | 62 | 13.7 | 16 | 3.5 | 6 | 1.3 | 432 | 95.2 | 81 | 17.8 | 268 | 59.0 | 105 | 23.1 |
| | M2K | 1 | 0.1 | 1 | 100.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 100.0 | 0 | 0.0 | 1 | 100.0 | 0 | 0.0 |
| Sugars and sweets (e.g., confectionary, chocolate, syrup) | All | 734 | 4.8 | 20 | 2.7 | 4 | 0.5 | 710 | 96.7 | 431 | 58.7 | 284 | 38.7 | 19 | 2.6 | 381 | 51.9 | 88 | 12.0 | 265 | 36.1 |
| | M2K | 84 | 11.2 | 1 | 12.0 | 0 | 0.0 | 83 | 98.8 | 47 | 56.0 | 36 | 42.9 | 1 | 1.2 | 52 | 61.9 | 16 | 19.0 | 16 | 19.0 |
| Vegetables (e.g., canned or frozen) | All | 833 | 5.5 | 645 | 77.4 | 82 | 9.8 | 106 | 12.7 | 279 | 33.5 | 58 | 7.0 | 496 | 59.5 | 745 | 89.4 | 81 | 9.7 | 7 | 0.8 |
| | M2K | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |

a Data were missing for sugars for n = 8 products, for sodium for n = 5 products and for saturated fat for n = 10 products, which were excluded from this analysis; b Foods in FLIP 2013 were classified into food categories as defined in the Table of Reference Amounts for Foods (TRA) in the Food and Drug Regulations [19]; c All = all products in FLIP (n = 15,200); M2K = products displaying child-appealing marketing on the packaging (n = 747); d Products that contained no “sugars”, “added sodium” or “added fat” were exempted from all “low in” thresholds; e Percentage of total products analyzed in the analytic sample (i.e., out of n = 15200 for “All” and out of n = 747 for “M2K”), note: some rows may sum to 100% plus or minus 0.1%, due to rounding; f Percentage of total products analyzed in that food category, in that analytic sample.
4. Discussion

The results of this study indicate that Health Canada’s proposed nutrient criteria would restrict M2K for most packaged food products and restrict the marketing of virtually all products that currently display M2K on the package—if the regulations were to consider product packaging under the scope of the included marketing platforms. Moreover, compared to products overall, products displaying M2K on the packaging, had an almost 7-fold lower proportion (2.7% vs. 18.0%) of products not exceeding any nutrient threshold and therefore being permitted to be M2K. Similarly, products displaying M2K on the packaging had a much higher proportion of products exceeding two nutrient thresholds and the proportion that exceeded all three nutrient thresholds was more than double that of the overall sample (i.e., 10.4% vs. 4.7%). These results align with other research noting the elevated levels of fat, sugars and sodium in food products that are M2K in Canada and supports the need for the implementation of regulations restricting M2K to limit the harmful impacts of this marketing practice [8,20,23].

When looking at nutrient thresholds individually, different results can be seen between the overall sample and the subsample of products being M2K. Overall, sodium was the added nutrient that most frequently exceeded the “low in” threshold, but in products displaying M2K, sugars were the most exceeded threshold. This is consistent with the literature showing that products displaying M2K are more likely to contain excessive levels of total and free sugars [24,25]. Importantly, the food categories that have the greatest proportions of products exceeding the sugars and saturated fat thresholds are categories that make up a large proportion of the total sample of products displaying M2K (e.g., bakery products, desserts, sugars and sweets, and beverages). These are also among categories that account for over one-third of children’s total sugars intakes in Canada, and are large contributors to children’s overall caloric intake [26,27]. Moreover, bakery (e.g., cookies, cakes, grain-based bars) and beverage products (e.g., carbonated and non-carbonated drinks) were also in the top categories exceeding all three nutrient thresholds, suggesting that these categories are an area of particular concern. Conversely, categories with a high proportion of products displaying M2K exceeding the sodium threshold represent a relatively small overall proportion of this subsample (e.g., marine and freshwater animals; meat, poultry, their products and substitutes; potatoes, sweet potatoes and yams; soups). These results suggest that in categories where M2K is particularly pervasive, while high sodium contents should not be ignored, sugars and saturated fats may be the primary nutrients of concern for Canadian children and could be key targets for product reformulation.

This analysis also allows for the comparison of the proposed Health Canada nutrient thresholds to other NP models developed, specifically for the purpose of restricting M2K, which have been applied to the same sample (i.e., FLIP 2013). The Health Canada nutrient criteria are less stringent than the Pan American Health Organization (PAHO) NP model (permitting 15.8% of products), but more stringent than the WHO Regional Office for Europe (EURO) model (29.8% permitted), the voluntary, industry-led CAI Uniform Nutrition Criteria (25.3%) and the Food Standards Australia New Zealand Nutrient Profiling Scoring Criterion (FSANZ-NPSC) (49.0%) [8,20]. In the subsample of products displaying M2K on the packaging, the Health Canada criteria was the most stringent of all models, with the PAHO model permitting 3.5% of products, EURO permitting 6.2%, the CAI permitting 23.4% and FSANZ-NPSC permitting 24.4% [8,20]. However, all models would restrict a higher proportion of products displaying M2K on the packaging than the overall sample, confirming that no matter the nutrient criteria used to assess a product’s eligibility for M2K, these products tend to be less healthful than the overall food supply.

Key characteristics of the Health Canada NP model can help explain its stringency relative to other models, specifically it’s consideration of only ‘negative’ nutrients (e.g., sodium, sugars, saturated fat) and that it does not use category-specific criteria, requiring all foods to meet the same nutrient thresholds. Health Canada’s model performs similarly to the PAHO model, which also only applies ‘negative’ nutrient thresholds to processed and ultra-processed foods (similarly to having “added ingredients”) [28]. Conversely, the EURO and CAI models both employ category-specific nutrient criteria which take into account the nature of a product category and adjust the nutrient thresholds
across (e.g., higher fat thresholds for dairy products), which could explain these models’ reduced stringency compared to Health Canada’s thresholds [29,30]. The FSANZ-NPSC scores products based on both ‘negative’ and ‘positive’ nutrients (e.g., protein, fiber), whereby the addition of positive nutrients can balance high levels of negative nutrients and increase a product’s final score [31]. While this allows for the consideration of health-promoting aspects of a product, it reduces this model’s stringency in terms of reducing children’s exposure to nutrients of public health concern, compared to Health Canada’s criteria. It is worth noting that although the FSANZ-NPSC was based on the Ofcom model which was developed for restricting M2K in the UK [32], its primary purpose was not for M2K restrictions, rather for determining a product’s eligibility to carry health claims [31].

While the proposed nutrient criteria would be effective in ensuring that only products with low levels of sugars, sodium and saturated fats are permitted to be M2K, there are some key limitations to the regulatory framework outlined in the draft Guide that may impact the overall strictness of the policy. The draft Guide explains that a product must first be determined to be “directed primarily at children” before being subject to the proposed nutrient criteria. However, the criteria that Health Canada has proposed to determine M2K are highly subjective, leaving several loopholes for marketing manipulation and therefore, the evasion of the highly stringent nutrient criteria. As mentioned, a key gap in these criteria is the failure to include product packaging under the scope of child-appealing marketing media, despite it being the largest source of children’s exposure to food marketing [17]. The present analysis demonstrates that 97.3% of products that are currently being M2K on product packaging would not meet the proposed nutrient criteria, but if the regulations were to be implemented as is, all of these products would still be permitted to be M2K, despite containing elevated levels of nutrients of public health concern. In order to ensure that future M2K restrictions are effective in reducing children’s exposure to HFSS foods, they should either require that all foods meet the proposed nutrient criteria before being eligible to be M2K, or broaden and clarify the definition of marketing “directed primarily at children”. However, the presented study finds that overall, the Health Canada’s proposed criteria would restrict 1.4 times more products from M2K than the CAI’s Uniform Nutrition Criteria and would restrict 8.6 times more products from M2K in the subsample currently displaying M2K on the packaging [8]. This corroborates previous criticisms of the CAI’s ability to effectively restrict M2K and demonstrates that the nutrient criteria proposed by Health Canada would be a vast improvement over the voluntary industry-led M2K restrictions that currently exist in Canada, particularly if the previously discussed limitations of the proposed regulations are addressed in the future iteration.

This study presents the first analysis of the most recently published version of Health Canada’s proposed nutrient criteria to support the marketing restrictions outlined in Bill S-228, using a large, nationally representative sample of Canadian packaged products. This work also facilitates the comparison of Health Canada’s proposed nutrient criteria to several different NP models and can assist policy makers and researchers in elucidating the strengths and limitations of various NP models for restricting children’s exposure to HFSS foods. There are some limitations to this analysis inherent to the nature FLIP database, namely that it does not contain information for fresh and unpackaged food products (e.g., fresh fruits and vegetables) which would largely be permitted to be M2K. Moreover, FLIP is a cross-sectional database and therefore, only represents the status of the Canadian packaged food supply at the time of collection. Additionally, FLIP 2013 data is not sales-weighted and analyses on Canadians’ purchasing (and consequently, consumption) of packaged products were not within the scope of this research. Finally, this study only presents data on products that display M2K on the packaging and therefore, that subsample of products likely underestimates the proportion of products across the entire food supply that are advertised to children on all possible marketing platforms, such as television or the internet.
5. Conclusions

Overall, the results of this work suggest that Health Canada’s previously proposed nutrient criteria are stringent and have strong potential to reduce children’s exposure to marketing of HFSS foods and beverages. The results also demonstrate that products displaying M2K on the packaging are more likely to exceed thresholds for nutrients of public health concern than the overall food supply and regulations are needed to ensure that all forms of child-appealing marketing are covered under the scope of regulations in order to best protect Canadian children, and children in other countries aiming to regulate similarly. Ultimately, this research supports the necessity of continued efforts to implement federally mandated restrictions on M2K in Canada and globally to help improve children’s diets and reduce their risk of diet-related chronic disease.

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