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# Evaluating Industry Self-Regulation of Food Marketing to Children

Dale L. Kunkel, PhD, Jessica S. Castonguay, PhD, Christine R. Filer, MA

**Introduction:** Concern has grown about the role of televised food advertising as a contributor to childhood obesity. In response, the food industry adopted a program of self-regulation, with participating companies pledging to limit child-targeted advertising to healthier products. The implicit promise of the industry initiative is a significant improvement in the overall nutritional quality of foods marketed to children, thereby negating the need for governmental regulation to accomplish that objective. This study assesses the efficacy of industry self-regulation by comparing advertising content on children's TV programs before and after self-regulation was implemented.

**Methods:** A systematic content analysis of food advertisements ($n$=625 in 2007, $n$=354 in 2013) appearing in children's TV programs on the most popular cable and broadcast channels was conducted.

**Results:** All analyses were conducted in 2014. Findings indicated that no significant improvement in the overall nutritional quality of foods marketed to children has been achieved since industry self-regulation was adopted. In 2013, 80.5% of all foods advertised to children on TV were for products in the poorest nutritional category, and thus pose high risk for contributing to obesity.

**Conclusions:** The lack of significant improvement in the nutritional quality of food marketed to children is likely a result of the weak nutritional standards for defining healthy foods employed by industry, and because a substantial proportion of child-oriented food marketers do not participate in self-regulation. The lack of success achieved by self-regulation indicates that other policy actions are needed to effectively reduce children's exposure to obesogenic food advertising.
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## Introduction

Childhood obesity is a major threat to public health.[1] Numerous factors are responsible for the epidemic, and children's exposure to advertising for nutritionally poor foods is a significant contributor to the problem.[2] The average child sees more than 5,500 televised food ads annually,[3] leading to a range of adverse effects on eating habits.[2,4,5] Most food commercials targeted at children promote low-nutrient, high-calorie products, such as sugared cereals, salted snacks, and fast foods.[6–8] By contrast, genuinely healthy foods that should be part of a regular diet are rarely advertised to children.[9,10]

A 2006 IOM report triggered ongoing public debate about the issue,[11,12] warning that unhealthy food advertising puts child health at risk.[2] The IOM recommended that industry should improve their practices, noting,

> If voluntary efforts related to advertising during children's television programming are unsuccessful in shifting the emphasis away from high-calorie and low-nutrient foods and beverages to the advertising of healthful foods and beverages, Congress should enact legislation mandating the shift on both broadcast and cable television.[2]

The IOM report also recommended that licensed characters[a] popular with children should be used solely to promote healthy products.[2] Many children form parasocial bonds with favorite characters[13]; thus, character-based advertising is a uniquely powerful form of commercial persuasion.[14,15]

The food and beverage industry responded by creating the Children's Food and Beverage Advertising Initiative

From the Department of Communication (Kunkel, Filer), College of Social and Behavioral Sciences, University of Arizona, Tucson, Arizona; and the Annenberg School of Communication (Castonguay), University of Pennsylvania, Philadelphia, Pennsylvania

Address correspondence to: Dale Kunkel, PhD, Department of Communication, University of Arizona, Tucson AZ 85721. E-mail: kunkel@u.arizona.edu.

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[a]A licensed character is a fictional figure that originates from children's entertainment, such as a cartoon show or popular toy, but which has no pre-existing linkage to the advertised product. Examples include Bart Simpson and Spongebob Squarepants. Licensed characters are distinct from brand spokes-characters, such as Tony the Tiger, Cap'n Crunch, and the Trix Rabbit.

(CFBAI), a self-regulatory program.[16] Participants in the CFBAI, which include 17 of the nation's largest food companies, promise that child-directed ads will feature only healthier foods that meet nutritional standards specified by each company. All companies also commit to limit the use of licensed characters to advertising for healthy foods.

### Assessing the Children's Food and Beverage Advertising Initiative

Industry self-regulation did not become fully functional until 2009. To evaluate the efficacy of the CFBAI, our research compares a sample of child-targeted food ads aired in 2007, before the CFBAI was announced, with an equivalent sample of 2013 food advertising, 4 years after industry self-regulation was fully implemented.

The study has two key foci. First, it assesses whether each company fulfilled all elements of its CFBAI pledge. Products advertised in child-targeted commercials were linked to their parent corporation and assessed for conformity with company-specific nutritional standards. For example, the Kellogg Company[17] pledged that all child-targeted advertising will contain a maximum per serving of 200 calories, 2 g saturated fat/0 g trans fat, 230 mg sodium, and 12 g added sugar (Table 1). All ads for Kellogg products in the samples of advertising are identified and assessed for conformity with Kellogg's specific nutrition criteria. That process is then repeated for all participating companies, each of which adopted varying pledge standards.

A second and more critical issue to examine is the impact of self-regulation on the overall environment of food advertising to children. Not all food companies participate in the CFBAI, meaning the initiative's efforts could be diluted by advertising for less-healthy foods from non-participating companies. It is also possible that lax standards for defining healthy foods could undercut the impact of self-regulation. Accordingly, the study independently evaluates the nutritional quality of the overall marketplace of food advertising directed at children and compares the patterns observed once the initiative was in effect with previous levels.

To assess nutritional quality of advertised foods, the study uses measures based upon a U.S. DHHS food rating system, which is publicized widely as part of the agency's Ways to Enhance Children's Activity and Nutrition (WE CAN!) initiative.[18]

## Methods

### Study Sample

The study examines food advertising in children's programs on broadcast and cable TV. Over a period of 10 weeks (February 1–April 15), one episode of each regularly scheduled children's program that aired between 7:00AM and 10:00PM on each targeted channel was recorded for analysis. The examined channels included five broadcast networks (ABC, CBS, Fox, NBC, CW) and two cable networks (Cartoon Network, Nickelodeon) that deliver large volumes of children's programming. Children's programs were defined as any show with a V-chip rating of TV-Y (all children) or TV-Y7 (children aged ≥7 years), or any show with a Federal Communications Commission rating of E/I (educational/informational) that targets children aged <12 years.

The 2007 sample included 145 shows, representing 73.5 hours of programming. The 2013 sample consisted of 103 shows and 55.0 hours of content. The two samples varied in size because of reductions in the amount of children's programming offered on broadcast and cable channels in 2013.

### Measures

All commercial content was measured for length of time, product type, use of licensed characters, and nutritional quality. To assess nutritional quality, products were categorized according to a rating system devised by the DHHS[18] that differentiates three types of products: *Go*, *Slow*, and *Whoa*. *Go* foods are rich in nutrients and low in calories, fat, and added sugar. They can be consumed "almost anytime."[18] Examples include vegetables, fruits, whole grain breads/cereals, low-fat yogurt, nonfat milk, and diet soda. *Slow* foods are higher in fat, added sugar, and calories, and should be consumed "sometimes, at most several times a week."[18] Examples include broiled hamburgers, nuts or peanut butter, waffles, most pastas, 100% juice, and 2% low-fat milk. *Whoa* foods are high in calories, fat, and added sugar, and are low in nutrients. They should be consumed "only once in a while or on special occasions" and only in small portions.[18] Examples include fried

**Table 1.** Examples of CFBAI Participants' Nutritional Standards

| Company | Calories | Saturated Fat | Trans Fat | Sodium | Sugar |
|---|---|---|---|---|---|
| The Dannon Company Yogurt, Dairy Snack, & Drinkable Dairy Products (per labeled serving) | Not specified | <10% kcal or ≤1 g | 0 g labeled | ≤230 mg | ≤12.5 g added |
| General Mills | ≤175 cal | ≤2 g | 0 g labeled | ≤230 mg | ≤12 g[a] |
| Kellogg Company | ≤200 cal | ≤2 g | 0 g labeled | ≤230 mg | ≤12 g[a] |
| McDonald's Meals | ≤600 cal | ≤10% kcal | 0 g labeled | ≤740 mg | ≤20/15 g |

[a]Excluding sugars naturally occurring in fruits, vegetables, and dairy.
CFBAI, Children's Food and Beverage Advertising Initiative.

chicken, hamburgers, cookies, ice cream, whole milk, and regular soda. For products with multiple components, nutritional quality was judged by averaging the value of the individual elements. For example, a kids' meal with a fried hamburger (*Whoa*=3); low-fat milk (*Slow*=2); and apple slices (*Go*=1) would be classified as a *Slow* product (3+2+1/3 = 2).

### Coding and Reliability

The classification of data was accomplished by two independent groups of trained coders in 2007 ($n$=9) and 2013 ($n$=8). For each of the two data sets, inter-coder reliability was assessed regularly during data collection. Advertising contained in a total of nine randomly selected half-hour programs from 2007 ($n$=52 food ads) and 2013 ($n$=39 food ads) was evaluated by all coders and compared using Scott's pi to determine reliability coefficients. All examined variables achieved a reliability level of $\geq$0.90.

## Results

One clear difference between food advertising in 2007 and 2013 involved the frequency of commercials. The rate at which food ads appeared during children's programming dropped from 8.5 per hour in 2007 to 6.4 per hour in 2013 ($Z$=–4.5, $p<0.001$), a decline of roughly 25% (Table 2). Similarly, the average amount of time devoted to food advertising dropped from 3:29 minutes per hour to 2:21 minutes per hour over this period ($Z$=–3.73, $p<0.001$). Despite this reduction in volume, food commercials comprised 24.5% of all advertising on children's TV programming in 2013.

Examination of compliance with industry self-regulation revealed complete conformity with company pledges. More specifically, 247 child-targeted food commercials from CFBAI participants were identified in the 2013 sample, and 100% of these featured a product that met all of the nutritional standards specified in each company's pledge. Thus, the data confirmed that CFBAI participants consistently complied with all commitments regarding nutritional guidelines for foods advertised to children.

**Table 2.** Overall Amount of Child-Targeted Food Advertising, 2007–2013

| | 2007 | 2013 |
|---|---|---|
| Food ads per hour | **8.5** ($n$=625) | 6.4 ($n$=354) |
| Minutes per hour devoted to food ads | **3:29** | 2:21 |
| Non-food ads per hour | 14.7 ($n$=1,080) | **19.5** ($n$=1,072) |
| Minutes per hour devoted to non-food ads | 6:02 | **8:06** |
| All ads per hour | 23.3 ($n$=1,705) | **25.9** ($n$=1,426) |
| Minutes per hour devoted to all ads | 9:32 | **10:28** |

*Note:* Boldface indicates statistical significance ($p<0.05$).

This study analyzed the nutritional quality of the products presented in all child-targeted food/beverage commercials by employing the *Go/Slow/Whoa* food rating framework. Figure 1 indicates that the large majority of foods advertised to children both before and after industry self-regulation were for so-called *Whoa* products, which are nutritionally deficient foods that should be avoided in a regular diet. In 2007, 79.4% of food ads fit in this category, compared to 80.5% in 2013, when self-regulation was in full force. These two data points did not differ significantly ($Z$=0.75, $p$=0.45), and thus one can conclude that industry self-regulation has not reduced food advertising for products that pose the greatest risk for obesity.

Comparing the frequency of advertisements for *Slow* products also revealed no significant change over time. Advertising for *Slow* products accounted for 16.5% of all food ads in 2007, compared to 18.4% in 2013 ($Z$=0.43, $p$=0.67). Finally, ads for truly healthy *Go* products were so rare that the sample size was inadequate for statistical comparison.

A separate analysis focused solely on CFBAI participants demonstrates the stability of their advertising practices over time both before and after the adoption of industry self-regulation (Figure 2). For example, the frequency with which *Whoa* products appeared in 2007 (76.4%) was closely paralleled in 2013 (75.3%). Overall, no significant improvement occurred in the nutritional quality of foods marketed to children by companies participating in self-regulation following implementation of the CFBAI through 2013.

In 2013, approximately one of every eight child-targeted food ads (11.6%) included a licensed character, about the same frequency observed in 2007 (13.0%) ($Z$=–0.63, $p$=0.53). As noted, participants in industry self-regulation have pledged to limit the use of licensed characters solely to advertising for products that meet their criteria for a "better-for-you" product. Analysis revealed no violations of this commitment, reflecting 100% compliance with CFBAI guidelines. When licensed characters were used by self-regulatory participants, the characters appeared only in ads for products that met the relevant company's nutritional standards.

In contrast, our food rating analysis revealed that more than half (61.0%) of all advertisements that featured a licensed character in 2013 promoted a nutritionally deficient *Whoa* product (Table 3). This represents a significant improvement compared to

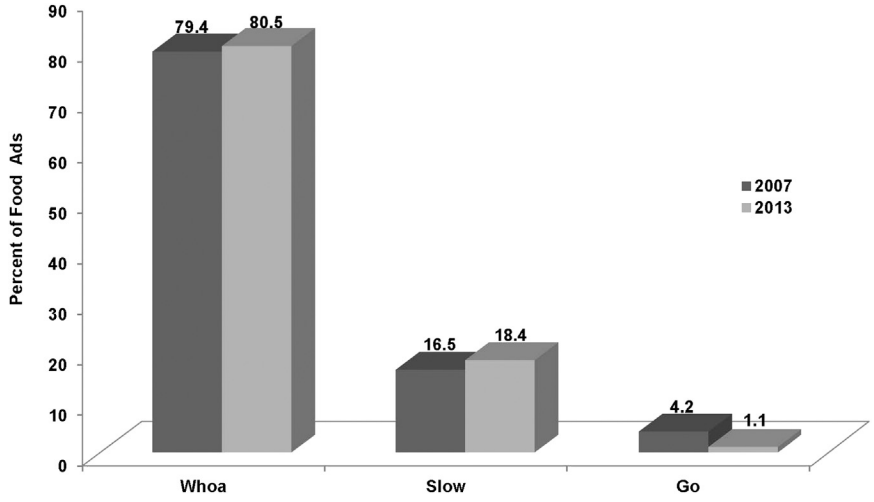


**Figure 1.** Comparison of nutritional quality in food ads overall, 2007–2013.[a,b]
[a]Two sample z-tests for population proportions revealed no significant differences between years in the *Whoa* and *Slow* categories at $p<0.05$.
[b]Findings in the *Go* category were not compared because of the small number of cases.

2007, when 91.4% of commercials with licensed characters promoted *Whoa* products ($Z=-4.05$, $p<0.001$). The pattern that has now emerged is that licensed characters are increasingly associated with moderately healthy foods categorized as *Slow* products ($Z=-3.77$, $p<0.001$). However, it remains rare for licensed characters to appear in advertising for genuinely healthy *Go* products.

Among the 354 total food ads identified by the study during 2013, 69.8% ($n=247$) were from companies that participate in industry self-regulation. The remaining 30.2% ($n=107$) were from companies that do not participate. Thus, the current reach of industry self-regulation stands at roughly two thirds of all food commercials aired during children's programs. The two most prominent food marketers that do not participate are Chuck E. Cheese (pizza) and Topps Company (candy), which accounted for 14.7% and 9.0% of all food ads, respectively.

Figure 3 demonstrates that non-participating companies advertised nutritionally poor *Whoa* products at a significantly higher rate than companies that have joined the CFBAI ($Z=3.76$, $p<0.001$). More specifically, 92.5% of food advertising from non-participants in 2013 promoted *Whoa* products, as compared to 75.3% for participating companies. Conversely, participating companies were significantly more likely to advertise a

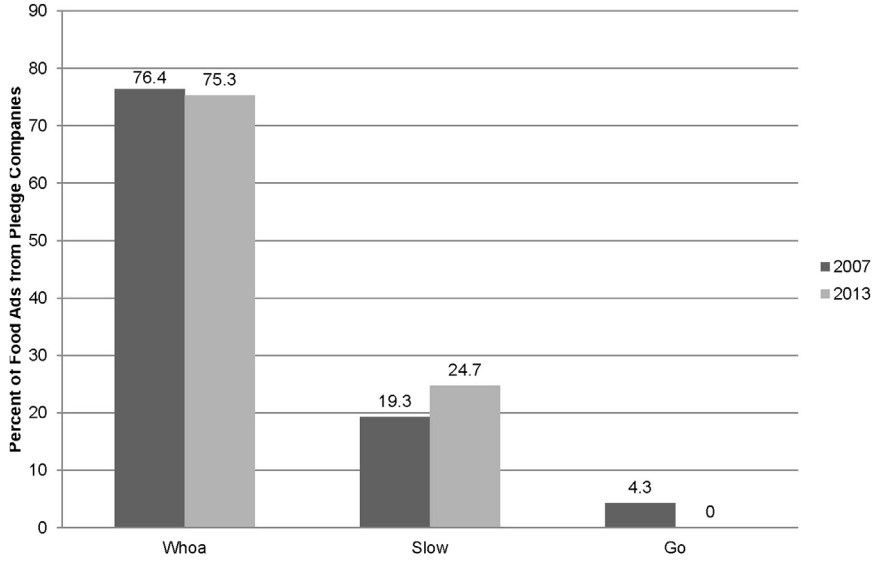


**Figure 2.** Comparison of nutritional quality in food ads for pledge companies, 2007–2013.[a,b]
[a]Two sample z-tests for population proportions revealed no significant differences between years in the *Whoa* and *Slow* categories at $p<0.05$.
[b]Findings in the *Go* category were not compared because of the small number of cases.

**Table 3.** Frequency of Food Ads with a Licensed Character by Nutritional Quality, 2007–2013[a]

| | Licensed characters | |
|---|---|---|
| **Nutritional quality** | **2007 (*n*=81), %** | **2013 (*n*=41), %** |
| *Go* | 1.2 | 4.9 |
| *Slow* | 7.4 | **34.1** |
| *Whoa* | **91.4** | 61.0 |

*Note:* Boldface indicates statistical significance ($p<0.05$).
[a]Findings in the *Go* category were not compared because of the small number of cases.

moderately healthy *Slow* product than non-participants ($Z=-4.68$, $p<0.001$). Advertisements for *Go* products were so rare that the sample size was inadequate for comparison.

## Discussion

In response to public concern, the food industry implemented a program of self-regulation known as the CFBAI. In evaluating the efficacy of industry self-regulation, this study shows two highly dissonant findings. First, the CFBAI has completely fulfilled all specified commitments. The data confirm that all companies met their applicable pledges by advertising only products that meet nutritional guidelines stipulated by the parent corporation. Similarly, companies also fulfilled their pledge to use licensed characters solely in advertising for products that comply with the parent corporation's guidelines for healthier products. In sum, the industry has done everything it promised, in technical terms.

Yet, despite consistent compliance, self-regulation has been ineffective in shifting the landscape of food marketing to children away from an overwhelming emphasis on obesogenic products. In 2013, with industry self-regulation at full throttle, four of every five food ads (80.5%) aired during children's programming still promoted nutritionally deficient products, or so-called *Whoa* foods, which pose health risks when consumed in abundance.

This outcome can be explained by several factors. First, not all food marketers participate in the CFBAI. In 2013, nearly one third (30.2%) of all children's food ads originated from companies outside of self-regulation, and their advertising is not subject to any nutritional quality standards. The data demonstrate that such companies are far more likely to advertise unhealthy products than companies engaged in self-regulation. Given that such a large proportion of child-targeted food advertising originates from companies outside the umbrella of self-regulation, a dilution effect occurs in terms of improvements achieved in the nutritional quality of the food advertising seen by children. This dilution effect inevitably diminishes the efficacy of self-regulation.

Second, the nutritional standards employed by companies participating in the CFBAI do not necessarily reflect high benchmarks. Many companies classify a product as healthy if a small portion of the undesirable ingredients is removed from its original formulation. This consideration accounts for the disparity between the

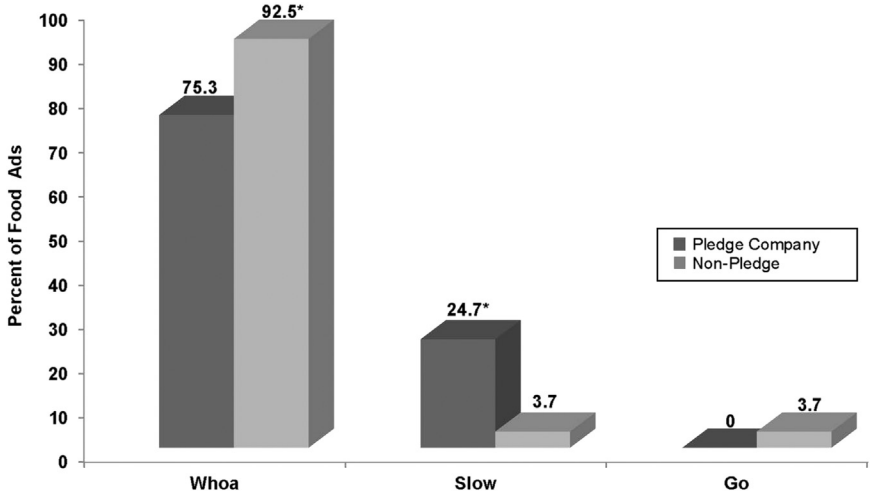


**Figure 3.** Comparison of nutritional quality in food ads for pledge and non-pledge companies, 2013.[a,b]
[a]Asterisks (*) indicate a significantly greater value between companies in each nutritional category at $p<0.05$ based upon two sample z-tests for population proportions.
[b]Findings in the *Go* category were not compared because of the small number of cases.

industry claim that companies promote only healthier foods to children, and the study's finding that the majority of products advertised by CFBAI participants fall in the poorest nutritional category.

Deficiency in the nutritional standards employed by industry self-regulation has already been recognized as a critical shortcoming.[19–21] Dr. William Dietz,[22] a recently retired senior CDC official, criticized CFBAI nutritional standards as "suboptimal for the health of children," noting that profit motives are at cross-purposes with concerns about children's health. This point is consistent with Brownell's[23,24] suggestion that industry resistance to reform occurs because people tend to eat larger servings (and hence buy more product) when foods include greater amounts of fat, salt, and sugar.

Regardless of the factors that account for the modest impact so far, the conclusion remains clear: Industry self-regulation has achieved little improvement in the nutritional quality of foods advertised to children. In 2013, three of four child-targeted food ads (75.3%) from CFBAI participants promoted products in the poorest nutritional category. That frequency jumps even higher when the advertising of non-participating companies is considered.

Another important finding involves the use of licensed characters in food advertising. The IOM recommended that licensed characters be used "only for the promotion of foods and beverages that support healthful diets for children and youth."[2] Although participating companies have technically complied with their commitments under self-regulation, our analysis found that the majority of food ads featuring licensed characters promote nutritionally deficient products. This pattern of advertising falls far short of the IOM's recommendation, and demonstrates how the most powerful advertising tactics are still employed to promote unhealthy foods to children.

An unexpected finding is the overall reduction in the amount of food advertising in children's programs that aired in 2013 (6.4 ads/hour) as compared with 2007 (8.5 ads/hour). Such a reduction, however, was never specified as a goal of self-regulation and has not been linked to it. Rather, the drop is more likely related to a shift in marketing tactics that has seen food advertisers migrate to new media such as Internet-based advergames and social media, both of which allow them to reach children more cheaply and with less public scrutiny as compared with TV advertising.[19,25,26] Despite the recent decline in the volume of child-targeted food ads, foods/beverages remain among the most heavily advertised products on TV. Given the dramatic growth of child-targeted food marketing in new media, many estimates indicate that children are now exposed to heavier doses of advertising for unhealthy products than ever before.[27,28]

Other recent studies that used different metrics to assess the extent of unhealthy products in child-targeted food advertising have yielded similar findings to the data reported here. For example, Powell et al.[8] found that 86% of ads seen by children were for products high in saturated fat, sodium, or sugar. Dembek and colleagues[29] reported that less than 5% of food ads were for products categorized as healthy and that children's overall exposure to obesogenic food ads has actually increased, despite recent reductions in food advertising during child-targeted programs, as a result of increases in other TV genres. The consistency of findings in this realm suggests strong validity for the conclusion that unhealthy food marketing continues to contribute to childhood obesity.

In the face of pleas for advertising reform, the food industry has achieved what might be labeled as baby steps. Indeed, this study demonstrates that no significant decline in the proportion of food ads devoted to unhealthy *Whoa* products occurred as a result of self-regulation, even among CFBAI participants. Given that corporate profit concerns unavoidably mitigate more stringent industry-based reforms, continued reliance upon self-regulation to resolve this problem seems destined to yield only modest benefits. With a persistent national obesity crisis, the failure to act more strongly holds adverse implications for America's children. As the IOM suggested in 2006,[2] governmental restrictions on advertising practices will likely be required to end the predominance of unhealthy products in child-targeted food marketing. Such steps are increasingly being pursued by countries worldwide.[30]

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