

Restaurant Response to the San Francisco Toy Ordinance:  
Changes in Toy Marketing and Children's Menu Options

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**Abstract**

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**Background:** On December 1, 2011, San Francisco, CA became the first US city to pass the “Healthy Food Incentives Ordinance,” which prohibits fast food restaurants from giving away free toys or other incentives in combination with the purchase of a children’s meal unless it meets minimal nutrition criteria. Restaurants were given a year to comply with this ordinance and could respond by improving the healthfulness of it’s children’s menu items or by changing it’s toy marketing or distribution practices.

**Purpose:** Compare changes in children’s menu items, food environments and toy/marketing practices at ordinance-affected restaurants in San Francisco before and after ordinance enactment.

**Methods:** All possible children’s menu combinations at 30 ordinance-affected fast food restaurants (representing 8 national/global chains) were evaluated at 4 time points: 3 pre-ordinance enactment and 1 post-ordinance enactment using corporate nutrition information. The restaurants’ food environment and toy marketing practices were assessed using the Children’s Menu Assessment (CMA) tool.

**Results:** While many restaurants added healthier sides or beverages to their children’s meals during the study period, nutrition analysis showed that no combinations of children’s meals met the ordinance’s nutritional criteria at any time point. Eleven of thirty restaurants did not comply with the ordinance. The remaining 19 restaurants complied by offering the toy for ten cents (n=7), eliminating the children’s meal (n=6), or eliminating toy giveaways (n=6). Overall, CMA scores improved an average of 0.89 points from time point 1 to time point 4 due to a mix of both improvements and declines in score by chain. Improvements were seen in the areas of nutritional guidance, toy/marketing practices, presence of unhealthy desserts and side dish score while a decline was seen in beverage scores. Percentage of healthy meals, healthy desserts and healthy grains did not change.

**Conclusions:** The ordinance was not effective in inducing restaurants to meet ordinance nutrition criteria. The greatest barrier to compliance with the ordinance’s nutrition criteria appeared to be the addition of 0.75 cups of vegetables to children’s meals. Additionally, the wording of the ordinance, specifically the inclusion of the word “free,” allowed restaurants to comply by charging ten cents for their toys or eliminating children’s meals from their menu. Time and care should be spent on the wording of future ordinances to

ensure the words chosen will produce the desired outcomes. However, within the year the ordinance was enacted, many global and national fast food chains made healthful changes to their children's menu or toy/marketing practices. While we cannot say these changes were a direct response to the toy ordinance, it is evident fast food restaurants are capable and willing to make healthful changes.

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## **A. Introduction**

### **Childhood obesity is associated with poorer health**

In 2011-2012, 32% of youth were either overweight or obese.<sup>1</sup> Children who are obese are more likely to have obesity related medical conditions that affect nearly every organ in the body.<sup>2</sup> Obese children have a higher prevalence of respiratory disorders such as sleep apnea and asthma;<sup>2,3</sup> gastrointestinal problems including fatty liver disease, gallstones and gastroesophageal reflux disease;<sup>2</sup> endocrine disorders such as type II diabetes mellitus<sup>2,3</sup> and hypothyroidism<sup>2</sup>; cardiovascular risk factors including elevated blood pressure and elevated blood lipid levels;<sup>2,3</sup> psychiatric disorders such as depression and anxiety;<sup>2</sup> orthopedic conditions including fractures and musculoskeletal discomfort,<sup>2</sup> and skin conditions such as acanthosis nigricans.<sup>2</sup> Furthermore, these children are more likely to be obese as adults<sup>3</sup> and at increased risk for premature mortality due to obesity related complications.<sup>4</sup>

Excess bodyweight is the result of an energy imbalance over time where energy consumed exceeds energy expended.<sup>5</sup> Based on an examination of food consumption trends in the U.S., one area of concern is how much food Americans are now eating away from the home.<sup>5</sup> In 1970, 26% of household food expenditures was spent on food away from home, but by 2012 this number had risen to 43%.<sup>5</sup> Children consume, on average, 25% of their daily calories at fast food and other restaurants, so the nutritional quality of the meals is very important.<sup>6</sup> Unfortunately, fast food meals have low nutritional value and are generally served in large portions.<sup>5</sup>

## **The link between fast food in children's diets and obesity**

The number of fast food outlets has increased from about 30,000 in 1970 to more than 233,000 in 2004 making fast food restaurants the most rapidly expanding sector of the U.S. food system.<sup>7</sup> Many fast food restaurants offer menu items specifically for and marketed to children.<sup>6</sup> Children's meals are defined as a combination of entrée, side dish, and beverage that are targeted to children through marketing or age restrictions.<sup>8</sup> Of the top 50 fast food chains, 82% had dedicated children's menu items or meals.<sup>6</sup> A study using 2007-2008 NHANES data found that 33% of children (age 2-11) and 41% of adolescents (age 12-19) consumed food and/or beverages from fast food restaurants on a typical day.<sup>9</sup> When the nutritional quality of foods and beverages served at 18 of the top restaurant chains in the United States was examined, researchers found that less than 1% of all children's meal combinations (33 out of 5,427) met recommended nutrition standards.<sup>10</sup> It follows then that children who consume fast food have a higher intake of calories, total fat, saturated fat, sodium, sugar, and sugar sweetened beverages than non-fast food consumers<sup>9</sup> and are less likely to meet daily requirements for fruit, vegetable and milk groups.<sup>11</sup> Furthermore, an international cross-sectional study showed that consuming fast food one or more times per week was associated with a higher BMI (body mass index) among children.<sup>12</sup> Despite the association of fast food with poorer health outcomes, children continue to eat at fast food restaurants. This may be due in part to heavily child-directed marketing to encourage frequent visits by youth, as young as two years old, to fast food restaurants.<sup>10</sup>

## **Child-directed marketing activities in the fast food industry have been shown to influence children's food choices**

In 2012, fast food restaurants spent \$4.6 billion on advertising unhealthy food products compared to the \$367 million they spent on advertising healthy products such as milk, bottled water, vegetables and fruits.<sup>10</sup> In other words, the fast food industry spent more than 12 times the amount of money to advertise unhealthy items as they did to advertise healthy items.<sup>10</sup> Food advertising is just one type of marketing strategy fast food companies use to get consumers to buy their products. The number one form of food marketing directed at children by fast food restaurants is the inclusion of a free or minimally priced toy with the purchase of a children's meal.<sup>13</sup> In 2009, the food industry sold approximately 1.2 billion children's meals to kids ages 12 and under.<sup>8</sup> In the same year, ten of the major fast food restaurants spent 59% of their marketing dollars to acquire toys to distribute with these children's meals.<sup>13</sup>

Many of these toys are collectible items belonging to a group of matching toys or feature popular movie and TV characters.<sup>14</sup> Evidence shows that pairing toys, especially those branded with popular cartoon characters and celebrity endorsements, can enhance a child's perceived food tastes and preferences.<sup>14</sup> These toys tend to be marketed to children more than the fast food itself.<sup>15</sup> For example, one study showed that 69% of TV advertisements emphasized toys rather than food through the advertisements' visuals and audio scripts.<sup>15</sup>

Another recent study examined how 6,716 fast food restaurants across the country used child-directed marketing at their restaurant location.<sup>16</sup> Researchers found that 31% of fast food chains used child-directed marketing with the most popular strategies being:

indoor display for children's meals (13%), exterior advertisements with cartoon characters (5%), and exterior advertisements for children's meal toys (5%).<sup>16</sup> Because of this barrage of child directed marketing of unhealthy food items both at home and in the restaurant environment, the Institute of Medicine published a 2005 report, requested by Congress and sponsored by the CDC, that offered recommendations to guide the fast food industry.<sup>17</sup> Recommendations included reformulating meal and beverage options for kids that are lower in fats, calories, salt and added sugars and actively promoting these healthier options to children.<sup>17</sup>

### **Industry's efforts at self-regulation of child-directed marketing activities**

In response to the mounting pressure put on the fast food industry to improve their child-directed marketing practices, the Council of Better Business Bureaus launched the Children's Food and Beverage Advertising Initiative in 2006.<sup>18</sup> This initiative required participating companies to devote at least 50% of their child-directed advertising to promote healthful foods.<sup>8</sup> In 2007, Burger King and McDonald's, the only fast food companies who belong to the CFBAI, pledged to advertise products that met company established nutritional criteria.<sup>8</sup> However, when the Yale Rudd Center for Food Policy & Obesity evaluated McDonald's and Burger King's advertisements in 2013, Burger King's Smoothies were the only healthy item frequently advertised to youths.<sup>10</sup>

In 2011, the National Restaurant Association launched their Kids Live Well Program that required participating restaurants to offer at least one children's meal, including an entrée, side, and beverage, with fewer than 600 calories.<sup>19</sup> The meal was also required to include two or more servings of fruit, vegetables, whole grains, lean

protein and/or low-fat dairy and limit the amount of sodium, fats and sugar.<sup>19</sup> Popular fast food restaurants such as Burger King, Subway, Wendy's, and Dairy Queen joined the Kids Live Well Program.<sup>19</sup> Upon analysis of their children's menus, most restaurants made small improvements such as offering low-fat milk, 100% juice or fruit as a side.<sup>10</sup> Nevertheless, French fries remained the most common side.<sup>10</sup> Overall, there were no significant changes in the percentage of menu items that met calorie or nutrition requirements at any of the restaurants from 2011-2013.<sup>10</sup> As evidenced by the preceding paragraphs, industry self-regulation does not appear to have been sufficient, leading public health officials and policy makers to suggest stricter regulations.<sup>20,21</sup>

### **The development of city- and county-level toy ordinances**

In 2010, Santa Clara County California became the first U.S. jurisdiction to prohibit restaurants from giving away toys or other incentives with children's meals or with foods and beverages not meeting minimal nutritional criteria.<sup>20</sup> The ordinance was passed with the intention of preventing fast food restaurants from using toys to make unhealthful food items appealing to children.<sup>20</sup> To comply with this ordinance, researchers found that ordinance-affected restaurants improved their on-site nutritional guidance; promotion of healthy meals, beverages and side items; and discontinued distribution of toys with unhealthy food items.<sup>20</sup> However, the number of affected restaurants was small.<sup>20</sup>

On December 1, 2011, following the success of the Santa Clara County ordinance, San Francisco became the first US city to pass the "Healthy Food Incentives Ordinance."<sup>22</sup> It affected 98 restaurants in the city of San Francisco, and similar to the

Santa Clara ordinance, it prohibited restaurants from distributing free toys with children’s meals or with foods and beverages not meeting minimal nutritional criteria (see summary below).<sup>22</sup> The intent of the ordinance was “to improve the health of children and adolescents in San Francisco by setting healthy nutritional standards for children’s meals sold at restaurants in combination with free toys or other incentive items.”<sup>22</sup>

***Summary of the “Healthy Food Incentives Ordinance” (No. 290-10) San Francisco, California<sup>18</sup>***

*A restaurant is prohibited from giving away any free toy, game, trading card, admission ticket, or any other consumer product, whether digital or physical, in combination with the purchase of a children’s meal (a combination of entrée, side dish and beverages that is targeted to children through marketing or age restrictions) unless it meets the following nutrition standards.*

***Children’s meals must contain:***

- *Less than 600 calories*
- *Less than 640 mg of sodium*
- *Less than 35% of total calories from fat, less than 10% of total calories from saturated fats, and less than 0.5g of trans fats (except for fat contained in nuts, seeds, peanut butter or other nut butters, or an individually served or packaged egg or individually served or packaged low-fat or reduced fat cheese.)*
- *0.5 cups or more of fruit and 0.75 cups or more of vegetables (unless the meal is served as breakfast in which case it must contain 0.5 cups of fruit or vegetables.)*

***Single food items and beverages must contain:***

- *Less than 35% of total calories from fat*
- *Less than 10% of calories from added caloric sweeteners*

*These criteria were based on the Institute of Medicine of the National Academies and the US National School Lunch Standards nutrition recommendations and standards for children.<sup>23,24</sup>*

## **Differences between the Santa Clara and San Francisco Toy Ordinances and their implications for restaurant compliance**

While the Santa Clara and San Francisco ordinances were similar in intent, there were also important differences. Below is a list of these key differences and explanations of how these differences may have affected restaurant compliance.

1) The legislation itself was worded slightly differently.<sup>20,21</sup> The word “free” was included in the San Francisco ordinance, so that the legislation read: ‘prohibited restaurants from giving away free toys and other incentives.’<sup>21</sup> However, the Santa Clara ordinance did not include the word “free.”<sup>20</sup> Because of the inclusion of the word “free” in the San Francisco ordinance, restaurants were able to comply with the legislation by simply charging for the toys.<sup>23</sup> For example, McDonald’s sold the toy for 10 cents stating that a portion of the money would be donated to Ronald McDonald House Charities, the non-profit organization started by McDonald’s corporation.<sup>23</sup>

2) The number of affected restaurants was different. The ban in Santa Clara covered fast food restaurants only in the unincorporated region of the city.<sup>20</sup> Because unincorporated regions are small in Santa Clara County, this included only a few restaurants.<sup>20</sup> The San Francisco ordinance applied to the 98 restaurants in the city of San Francisco that sold children’s meals with toys or other incentives.<sup>21</sup> Therefore, it is more likely that a larger percentage of affected-restaurants in Santa Clara would comply with the ordinance than in San Francisco.

3) The amount of time given to the restaurants to comply with the ordinance was also different. The affected restaurants in Santa Clara were given 90 days to comply with the ordinance<sup>20</sup> whereas the restaurants in San Francisco were given a year.<sup>21</sup> This may have

allowed changes to take place in San Francisco at the chain-level rather than just at individual restaurants. While restaurants in Santa Clara were forced to make changes quickly, we may see more gradual changes occur over the three pre-enactment time points in San Francisco.

4) The nutritional criteria were different in each ordinance:<sup>20,21</sup>

<p>Santa Clara: Children's meals must contain</p> <ul style="list-style-type: none"><li>• &lt;485 calories</li><li>• &lt;35% total calories from fat</li><li>• &lt;480mg sodium</li><li>• &lt;10% calories from added sweeteners</li></ul>	<p>San Francisco: Children's meals must contain</p> <ul style="list-style-type: none"><li>• &lt;600 calories</li><li>• &lt;35% total calories from fat</li><li>• &lt;640mg sodium</li><li>• 0.5 cups fruit and 0.75 cups vegetables</li></ul>
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It's possible that one of these ordinances may have been easier to follow. The San Francisco ordinance allowed for more calories and sodium, but also required fruits and vegetables, which may have been perceived as more difficult to follow.

5) Santa Clara County and San Francisco are different demographically.<sup>24,25</sup> In 2013, the population of Santa Clara county was 1.8 million<sup>24</sup> whereas the population of San Francisco was just over 800,000.<sup>25</sup> The ethnic demographics are roughly similar with the only large difference being that 27% of the population in Santa Clara county is Hispanic whereas 15% of the population in San Francisco is Hispanic.<sup>24,25</sup> In 2010, 38% of children in Santa Clara city were obese or overweight and 32% of children in San Francisco were obese or overweight.<sup>26</sup> Finally in 2010, 24% of Santa Clara County's population were children (under 18), whereas only 13% of San Francisco's populations were children.<sup>24,25</sup> Because Santa Clara has a larger population of children with a higher percentage of obese children, there may have been more public support for this ordinance, thus pressuring the restaurants to comply.

6) The non-compliance fines imposed on the restaurants were different. In Santa Clara the restaurants would receive a \$250 fine for the first violation, \$500 for the second and up to \$1,000 after that.<sup>27</sup> In San Francisco, restaurants would receive up to \$100 for the first violation, up to \$200 for the second violation, and up to \$500 for each additional violation.<sup>28</sup> Because the fine for the first violation in Santa Clara was higher, restaurants may have been more inclined to comply quickly.

## **B. Contribution of this study to the gaps in published research**

It has become apparent that the food industry self-regulation may not be sufficient;<sup>10</sup> therefore, public health officials have encouraged policy makers to improve the food served at fast food restaurants.<sup>20,21</sup> One such act is San Francisco's "Healthy Food Incentives Ordinance:" the first city-wide ordinance passed in the U.S. that supported families seeking healthy choices for their children at fast food restaurants. To date, no one has studied the impact of this ordinance on the menus and food restaurant environments in San Francisco. While Santa Clara passed a similar ordinance, there were many differences to the legislation, as previously discussed, that may change the restaurants' responses to this legislation. Therefore, the purpose of this study is to compare changes in children's menu items, food environments and toy/marketing practices at ordinance-affected restaurants in San Francisco before and after ordinance enactment.

## **C. Aims and Hypotheses**

### **Aims**

- 1) To determine whether any possible combination of children's meals were in compliance with the ordinance's nutritional criteria over 4 time points: 3 pre-ordinance enactment and one post-ordinance enactment.
- 2) To describe the changes in Children's Menu Assessment scores by chain in a sample of ordinance-affected fast food restaurants in San Francisco over all four time points.
- 3) Describe the changes in the eight Children's Menu Assessment (CMA) subscore measures: nutrition guidance, healthy meals, beverages, side dishes, desserts, and toys/marketing over all four time points.

### **Hypotheses:**

- 1) It is hypothesized that no children's meals will comply with the ordinance's nutritional criteria. This is based on prior research conducted in Santa Clara County.
- 2) It is hypothesized that restaurants will make the largest changes between time points one and two as they prepare for legislation enactment.
- 3) It is hypothesized that CMA scores will improve in ordinance-affected restaurants over time as restaurants attempt to comply with the ordinance.
- 4) It is hypothesized that we will see the most changes made in the following subscore measures: toys/marketing and side dishes. We expect to see the elimination of toys being offered with children's meals because of restaurants'

inability to comply with ordinance nutrition criteria. We expect that more healthful side dishes will be introduced as a part of children's meals since healthful side items (e.g., applesauce, baby carrots) can easily be substituted for less healthful side items. These are based on prior research conducted in Santa Clara.

#### **D. Implications of Research**

If San Francisco's "Healthy Food Incentives Ordinance" succeeds in nudging fast food restaurants to create healthier children's menu items and food environments, it may encourage other cities to pass similar legislation. Furthermore, if these types of ordinances pressure fast food restaurants to make health-related improvements at a local level, the fast food industry may be more likely to make these changes on a national or even global scale.

#### **E. Methods**

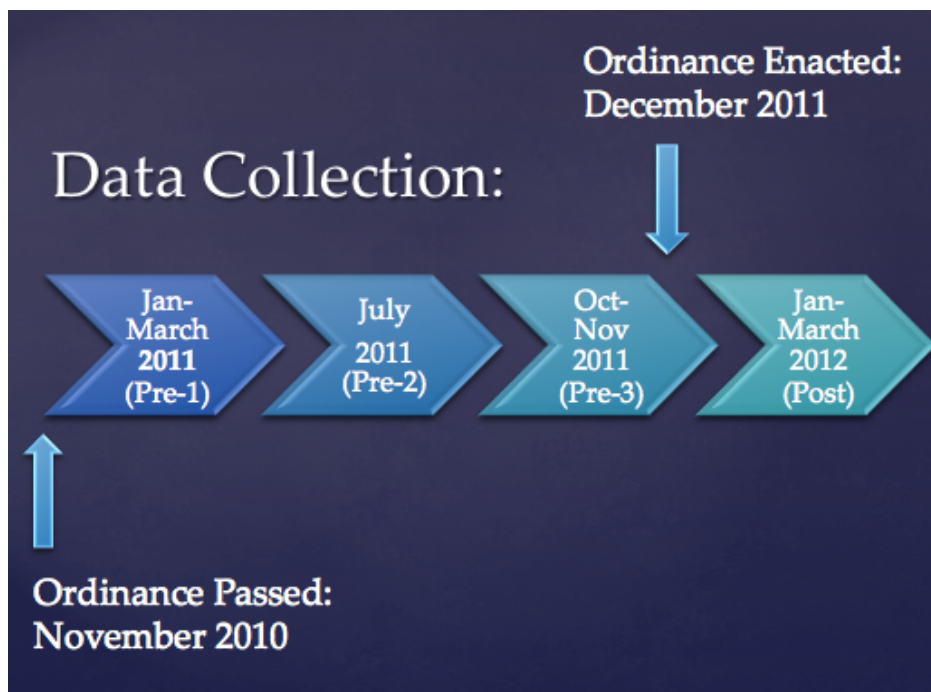
##### **Study Design**

On November 23, 2010 the city of San Francisco, CA passed the "Healthy Food Incentives Ordinance," and approximately one year later on December 1, 2011 the ordinance was enacted. The ordinance applied to all restaurants in San Francisco that sold children's meals with toys or other incentives (n=98). Our study sample was narrowed to 30 of those restaurants due to budget constraints, but still reflected the fast food

landscape in San Francisco. The sample consisted of 6 Subway's, 6 Taco Bell's, 5 McDonald's, 5 Burger King's, 2 Jack in the Box's, 2 Carl's Jr.'s, 2 Popeye's, and 2 Mel's (a local San Francisco fast food chain.) While restaurant locations were chosen at random by chain amongst the sample, a higher proportion of McDonald's, Burger King, Subway and Taco Bell restaurants were deliberately selected because these four chains comprised 84% of the 98 ordinance-affected restaurants. Additionally, based on previous research conducted on the Santa Clara toy ordinance, children most often requested toys from these restaurants with the exception of Subway.

Data were collected at 4 time points: 3 pre-ordinance enactment and 1 post-ordinance enactment. Pre-ordinance time point 1 was from January through March 2011 (immediately after adoption and 9 to 12 months before enactment); pre-ordinance time point 2 was throughout the month of July (5 months before enactment); pre-ordinance time point 3 was from October through November 2011 (one to two months before enactment); and post-ordinance was from January through March 2012 (one to three months after enactment and a seasonal match to time point 1.) See Box 2 for an illustration of these data collection points.

Box 2.



### **Data Collection:**

The “Healthy Food Incentives Ordinance” applied only to children’s meals so all possible children’s meal combinations (each combination of entrée, side and drink) were evaluated at each restaurant at each time point to determine whether or not they met the ordinance’s nutritional criteria. To determine this, we used corporate nutritional information by food or beverage item as posted on each chain’s website. To ensure we had the most up-to-date nutrition data, this information was retrieved anew at each time point.

To further evaluate restaurant changes that went beyond nutritional modifications, the food environment and toy/marketing practices at each restaurant were assessed using the Children’s Menu Assessment (CMA) tool; a 29-item standardized tool adopted from

the Nutrition Environment Measures Survey for Restaurants (NEMS-R) (See Supplemental files for tool).<sup>29</sup> The CMA tool expands on the children's menu subsection of the NEMS-R to provide a more detailed assessment of the overall food environment.<sup>29</sup> It measures availability of healthy options on children's menus and assesses toy promotion and branded marketing targeted at children.<sup>29</sup>

The total CMA score is the sum of eight subcategories: (1) presence and proportion of healthy meals, (2) grains, and (3) desserts (i.e. inclusion of unhealthy dessert), and the presence of (4) beverage options (i.e. availability of 100% juice or low-fat milk), (5) side dishes (i.e. availability of non-fried vegetables or sides with no added sugar), (6) nutritional guidance, (7) toy promotions, and (8) branded marketing (i.e. nutritional information for children's menu, use of branded marketing or toys for food promotion).<sup>29</sup> These categories are based on the 2010 Dietary Guidelines for Americans.<sup>29</sup> Final CMA scores range from -5 to 21, with higher scores indicating greater availability of healthy choices and nutritional guidance and less toy promotion and branded marketing.<sup>29</sup> The CMA tool has strong test-retest reliability and allows for objective comparisons across sites.<sup>29</sup>

A researcher trained to use the Children's Menu Assessment tool evaluated all possible children's meal combinations at each restaurant over the 4 time points. To assess baseline inter-rater reliability, a doctoral-level researcher independently conducted CMA audits at a randomly selected subsample of 21 restaurants. An Intraclass Correlation was performed using a two-way random model for absolute agreement on CMA scores. Results showed a good level of internal consistency (Intraclass correlation coefficient = 0.767 [95% CI: .490, .904], Cronbach's alpha = 0.864).

**Data Analysis:**

Statistical tests were not conducted in this study for two reasons. First, with such a small sample size, the statistical power of any statistical test used to make comparisons across restaurants may be quite low. In studies with low power, there is a higher probability of committing a type I error (i.e. detecting a statistically significant effect that is not truly present).<sup>30</sup> Second, due to the oversampling of certain restaurant chains (i.e. the proportion of Burger Kings selected for this study was not equal to the proportion of Burger Kings within the 98 ordinance-affected restaurants) any method of obtaining survey weights for the restaurants would not have reflected the actual sampling procedure. Therefore, descriptive statistics are reported below.

**F. Results****1) Compliance with the ordinance's nutrition criteria**

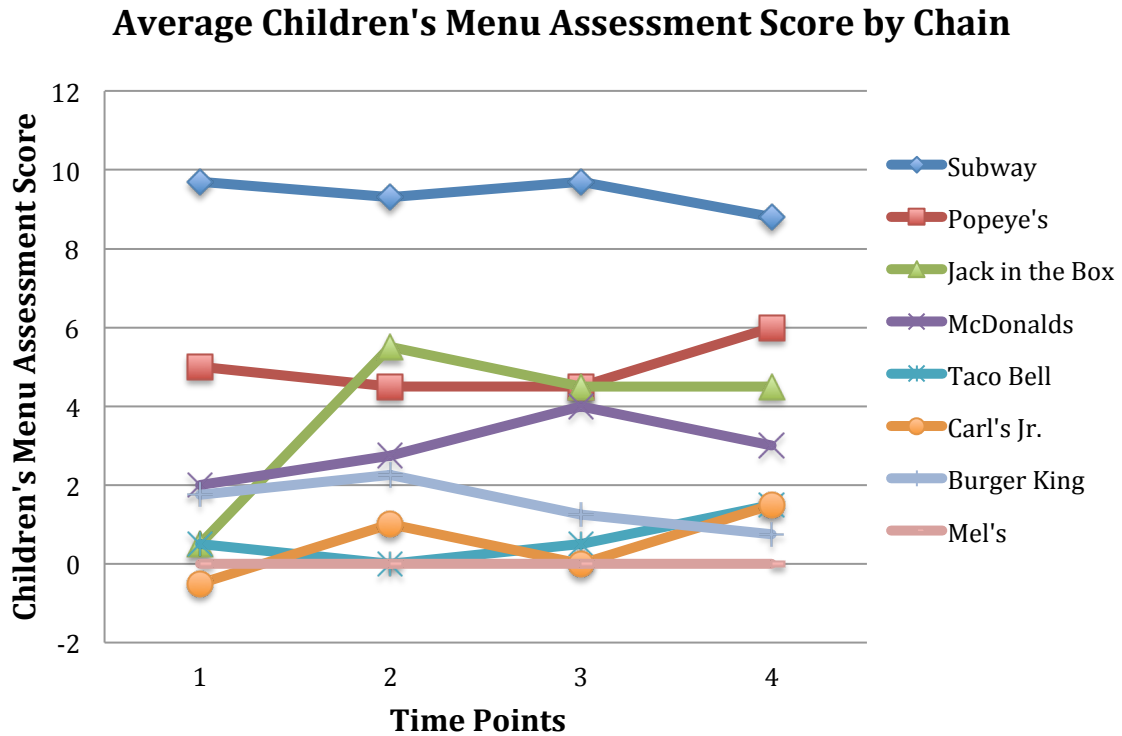
Nutrition analysis showed that no possible combinations of children's meals met the ordinance's nutrition criteria at any time point. Even if meals were within guidelines for calories, fat, sodium and fruit none were able to comply with the criteria of 0.75 cups of vegetables that we are aware of. One meal, Subway's "Fresh Fit" 4-inch veggie delight served with a side of apples and 1% white milk or 100% juice, was close to meeting ordinance criteria but we were unable to determine if the vegetables added to the sandwich consistently approximated 0.75 cups.

## **2) Changes observed in overall CMA scores**

The descriptive statistics below include data from only 24 of the 30 restaurants. This is because at time point 1, one McDonald's did not offer children's meals; and by time point 2, four Taco Bell's and one Burger King had stopped offering children's meals. Therefore, no CMA scores could be calculated for these restaurants. Initially these 6 restaurants were left in the analysis, and while their inclusion did not significantly change overall CMA scores, they masked some slight changes within the subscores that help describe changes seen in overall CMA scores. Thus, it was decided to omit them from the final analysis in order to reveal the true changes within the subscores.

Figure 1 shows the average Children's Menu Assessment scores by chain over the four time points. CMA scores range from -5 to 21, with higher scores indicating greater availability of healthy choices and nutritional guidance and less toy promotion and branded marketing.<sup>29</sup>

Figure 1.



Sample Size	Subway	Popeye's	Jack in the Box	McDonald's	Taco Bell	Carl's Jr.	Burger King	Mel's
N =	6	2	2	4	2	2	4	2

When looking at the average of all CMA scores at the 24 restaurants, the greatest improvement took place between time point 1 (T1) and time point 2 (T2) with an average increase of 0.80 points. However, CMA scores decreased an average of 0.11 points between time point 2 (T2) and time point 3 (T3). The CMA scores increased again by an average of 0.43 points between time point 3 (T3) and time point 4 (T4).

The mean difference in scores from time point 1 (T1) to time point 4 (T4) was 0.89 points.

- Jack in the Box had the greatest overall improvement in CMA score with an increase of 4 points from T1 to T4. The increase was due to the fact that customers could substitute apple bites for fries at no extra cost at both audited locations and could also substitute milk or juice for soda at no extra cost at one of two locations.
- Carl's Jr. had the second greatest improvement in CMA score increasing 2 points from T1 to T4. This was because they offered water as a healthier beverage option at no additional cost at one of their locations and apple bites as a healthier side option for an additional cost at one of their locations.
- Both Jack in the Box and Carl's Jr., stopped offering toys with their children's meals at one of each of their two locations, which also increased their CMA score.

McDonald's, Taco Bell, and Popeye's all showed minimal improvements in their CMA scores:

- McDonald's score went up 1 point because they changed their children's menu default side from French fries to a smaller portion of fries with apple slices. They also offered healthier beverages including low-fat milk, low-fat chocolate milk and 100% juice, which could be substituted for soda, possibly at an additional cost (i.e., menus stated these items "may include an additional cost").
- Popeye's created a new meal they marketed as 'healthier' at one of their two audited locations, which included non-fried chicken tenders, apple sauce, baguette, and a zero calorie drink. They also stopped distributing toys with children's meals at one of their locations.

- Taco Bell's score went up 1 point at T4 because Capri suns, milk or water were available at no additional cost with the children's meal at one of their locations. (This may be due to the fact that this Taco Bell was conjoined with a KFC and customers could, at times, order beverages off KFC's menu depending on the employee working.)

Mel's showed no change in CMA score because they made no alterations to their menu or food environment.

CMA scores at Subway and Burger King decreased from T1 to T4:

- While Subway consistently had the highest CMA score overall, it decreased overtime because at T1 they offered low-fat yogurt as a side, but by T4 all 6 audited locations had stopped offering low-fat yogurt.
- Burger King's scores decreased because 3 out of 4 locations offered 100% fruit juice as a beverage substitution for an additional cost at T1, but only 1 out of 4 offered 100% fruit juice at T4.

### **3) Changes observed in subscale scores**

Table 1 shows the averages of the eight subscale scores of all 24 restaurants combined from pre- to post-ordinance with possible ranges listed on the right.

**Table 1.**

<b>Subscales:</b>	<b>Time Point 1</b>	<b>Time Point 2</b>	<b>Time Point 3</b>	<b>Time Point 4</b>	<b>Change (T1→T4)</b>	<b>Possible Range</b>
<b>Nutritional Guidance</b>	0.92	1.02	1.08	1.06	+0.14	0 to 3
<b>Beverages</b>	0.13	0.14	0.14	0.11	-0.02	-2 to 3
<b>Toy/Marketing</b>	-0.71	-0.60	-0.63	-0.63	+0.08	-2 to 0
<b>Side Dish</b>	0.33	0.36	0.33	0.35	+0.02	0 to 7
<b>% Healthy Meals</b>	0	0	0	0	0	0-100%
<b>% Healthy Grains</b>	12.5	10.4	12.5	12.5	0	0-100%
<b>% Healthy Desserts</b>	0	0	0	0	0	0-100%
<b>Presence Unhealthy Desserts</b>	-0.08	-0.04	-0.04	-0.04	+0.04	-1 to 2

The largest improvement was seen in the Nutritional Guidance score, which increased 0.14 points between T1 and T4. All restaurants, except Mel's, had listed nutrition information on the menu board or in brochures by T4. The second largest improvement was seen in toy/marketing because 1 of 4 Burger King's, 1 of 2 Jack in the Box's, 1 of 2 Carl's Jr.'s, 1 of 2 Popeye's and both Taco Bell's no longer offered toys with their children's meals by T4. Additionally, 1 of 4 Burger King's, both Taco Bell's, both Carl's Jr.'s and both Popeye's removed toy marketing posters from their restaurants. Presence of Unhealthy Desserts had the third largest improvement with 0.04 points between T1 and T4. This change occurred because 1 of the 2 Taco Bell's did not include cinnamon twists with their children's meals at T2. Healthy Side Dish score increased by 0.02 points because all McDonald's, 1 of 2 Jack in the Box's, and 1 of 2 Popeye's offered a healthy side dish substitution at no additional cost with their children's meals. Despite these positive changes, we only saw an increase of 0.02 points because Subway stopped offering low-fat yogurt as a healthy side dish at all 6 of their locations. (While this may

appear to be a minor change, each of the 6 restaurants lost 2 points on their side dish subscore, which significantly brought down the overall Healthy Side Dish score.) Finally, Healthy Beverage score decreased by 0.02 points because, while 1 of 2 Taco Bell's, 1 of 2 Jack in the Box's, and 1 of 2 Carl's Jr.'s offered a healthy beverage substitutions at no additional cost, 3 out of 4 Burger King's stopped offering 100% fruit juice at T4. (Again, while this appears to be a minor change, this significantly brought down the overall Healthy Beverage score.)

No changes were seen in the Percentage of Healthy Grains, Percentage of Healthy Meals or Percentage of Healthy Desserts scores because no restaurants made any changes in these areas.

Table 2 qualitatively describes modifications each restaurant chain made that accounted for these sub-score changes.

**Table 2. Changes made from pre- to post-ordinance**

	McDonald's	Burger King	Taco Bell	Subway	Jack in the Box	Mel's	Carl's Jr.	Popeye's
<b>Children's Meals offered</b>								
Removed children's meals from menu as a way to comply with ordinance		X <sup>3</sup>	X <sup>6</sup>					
Advertised healthier children's meal options on menu board	X <sup>1</sup>			X <sup>10</sup>				X <sup>17</sup>
<b>Nutritional Guidance</b>								
Nutritional information available	X	X	X	X	X		X	X
<b>Side Dishes</b>								
New healthy side dish item added to meals at NO additional charge	X <sup>2</sup>			X	X			X
New healthy side item offered and added to meals WITH an additional charge		X					X <sup>14</sup>	
<b>Beverages</b>								
New healthy beverages offered and added to meals at NO additional charge			X <sup>7</sup>	X	X <sup>12</sup>		X <sup>15</sup>	
New healthy beverages offered and added to meals WITH an additional charge	X	X						
<b>Toy marketing and distribution</b>								
Toys no longer offered at restaurant		X <sup>4</sup>	X <sup>8</sup>		X <sup>13</sup>		X <sup>16</sup>	X <sup>18</sup>
Continued to offer toys with meals at NO additional cost				X <sup>11</sup>	X <sup>13</sup>	X	X <sup>16</sup>	X <sup>18</sup>
Continued to offer toys with meals WITH an additional cost	X	X <sup>4</sup>						
Removed toy marketing posters		X <sup>5</sup>	X				X	X
Notified patrons of change via poster explaining the ordinance	X	X						
<b>% Healthy Grains</b>								
Healthy grains added to meet ordinance criteria								
<b>Presence of Unhealthy Desserts</b>								
Unhealthy dessert removed from children's meal			X <sup>9</sup>					

1. All McDonald's locations offered and promoted their "Healthiest Kids Meal," which included chicken McNuggets, juice or milk, and side of half apples-half fries.
2. All children's meals automatically came with McDonald's new side of half apples-half fries.
3. One out of five Burger Kings had stopped serving children's meals by time point 4.
4. Three of four Burger Kings continued to offer their toys for an additional ten cents. One of four no longer offered a toy.
5. One Burger King location continued to advertise their toys stating toys were included with meals 'while supplies last.'
6. Four out of six Taco Bell's had stopped serving children's meals by time point 4.

7. One of two Taco Bell's serving children's meals offered Capri suns, milk or water as a healthy beverage substitution. However, this Taco Bell was conjoined with a KFC restaurant, so patrons ordered these beverages off KFC's menu.
8. Both Taco Bell's no longer offered toys with their children's meals by time point 1.
9. One of two Taco Bell's did not include cinnamon sticks with children's meals at time point 2.
10. All Subway's offered and promoted their "Fresh Fit" meals, which included a 4-inch turkey, ham, roast beef or veggie sandwich with 12oz low fat milk and apples.
11. All Subway's offered a reusable 'environmental' lunch bag with a toy inside.
12. One of two Jack in the Box's offered milk or juice as a healthy beverage substitution.
13. One of two Jack in the Box's stopped offering toys.
14. One of two Carl's Jr.'s offered apples at an extra cost.
15. One of two Carl's Jr.'s offered water at no additional cost.
16. One of two Carl's Jr.'s stopped offering toys.
17. One of two Popeye's offered and promoted their "Get Up and Geaux" meals, which includes two non-fried chicken tenders, apple sauce, baguette and zero calorie drink.
18. One of two Popeye's stopped offering toys.

## **G. Discussion**

No restaurants changed their children's meals to meet ordinance criteria. In addition, 11 out of the 30 restaurants continued to give away free toys with these meals. A similar result was found in the Santa Clara ordinance in that restaurants did not increase the number of healthful food options available on their children's menu, but the majority of restaurants did stop distributing free toys.<sup>20</sup> Because the restaurants in Santa Clara were only given 90 days to comply with the ordinance, researchers suggested that no nutritional changes were made because of insufficient time.<sup>20</sup> However, even though restaurants in San Francisco were given 1 year to comply, no meals at any of the 30 restaurants were found to be in compliance with the ordinance's nutrition criteria.

Because time did not appear to be the reason restaurants in San Francisco did not improve the nutritional quality of their children's meals, one possible explanation for this non-compliance may be due to how the ordinance was worded. The ordinance prohibited a restaurant "from giving away any free toy, game, trading card... with the purchase of a children's meal." Therefore, both Burger King and McDonald's were able to comply by charging 10 cents for the toy.

Restaurants also seemed to respond to the ordinance by eliminating the children's menu at their restaurant (i.e. 4 Taco Bell's, 1 Burger King and 1 McDonald's.) This may provide benefits in that these restaurants are no longer marketing toys and food items to children. However, negative effects may also be possible in that if a child went to one of these restaurants their only choice would have been to order off the adult menu. These

adult meals tend to come as larger portion sizes, which contain more calories, fat, sodium, sugar, etc.

Despite the unclear wording of the ordinance, some restaurants attempted to improve the nutritional quality of their side dishes or beverage options. By T4, six of eight restaurant chains offered apples or applesauce as a default or side dish substitution and six out of the eight restaurant chains offered low-fat milk, water or juice as beverage substitutions. However, the juice offered was not always labeled as 100% fruit juice on the menu. These fruit flavored drinks or fruit juice blends can contain more fructose, a sugar associated with heart disease and diabetes, than Pepsi, Coca-Cola or Dr. Pepper.<sup>31</sup> So while these juice beverages appear to be a healthier option that is not always the case.

One restaurant made an attempt to improve the nutritional quality of one of their entrees. Popeye's added a 'Get up and Geaux' meal that included non-fried chicken tenders rather than the traditional fried chicken tenders. Nevertheless, while the nutritional value of the entrée improved, the 'Get up and Geaux' meal as a whole did not meet ordinance criteria because it did not include 0.75 cups of vegetables.

While no restaurants were able to comply with the ordinance's nutrition criteria, it was interesting to note that many made improvements by adding fruit and changing beverage options. Nearly all restaurants in our study added apples or applesauce as a side, so requiring all children's meals to come with at least 0.5 cups of fruit may be something more feasible for restaurants to follow. The addition of vegetables appears more challenging and it could be that restaurants need more support to make these menu additions. Interestingly, many McDonald's restaurants located outside the U.S. already serve fruit and vegetables with their children's meals.<sup>32</sup> McDonald's restaurants in Latin

America offer vegetables and seasonal fruit with their children's meals.<sup>32</sup> Locations in France offer cherry tomatoes, pineapples and melon slices; locations in Italy offer kiwi on a stick; and locations in Hong Kong offer a cup of fresh corn with margarine.<sup>32</sup> It's possible that restaurants would oppose adding fruit and non-fried vegetables to their meal because conventional wisdom tells us that children do not like to eat fruits and vegetables. However, research shows that children in the U.S. may be willing to consume fruit and vegetables with their children's meals.<sup>33</sup> A 2014 study found that two-thirds of children would not feel negatively about receiving fruit and vegetable sides instead of French fries with children's meals.<sup>33</sup> Based on this research, it may be time to urge fast food restaurants in the United States to follow these other countries and add both fruits and vegetables as side dishes to children's meals.

Viewing the impacts of the San Francisco Ordinance from a broader standpoint, both the Santa Clara and San Francisco ordinance either directly or indirectly pressured the fast food industry to slowly make healthful changes. In 2011, the year the San Francisco ordinance was passed, many fast food chains announced healthful changes to their menu and toy marketing practices. In April 2011, right after time point 1 in our study, Subway reduced the sodium content in their 'Fresh Fit' sandwich line by 28%.<sup>34</sup> In June 2011, directly before time point 2 in our study, Jack in the Box announced they were stopping the distribution of toys with children's meals at all of their restaurants across the US.<sup>35</sup> The following month, McDonald's announced that by Spring 2012 the default side of their children's meals at all of their US restaurants would be the 1.1 ounces of fries with apple slices documented in our study. This trend carried over to table service restaurants when in September of 2011, Olive Garden, Red Lobster and other Darden

restaurants announced fruit or vegetable side dishes and low-fat milk would be the standard served with children's meals unless a substitution was requested.<sup>36</sup> Healthful changes continued with Chick-fil-A introducing grilled chicken nuggets and only offering 1% milk, 100% apple juice, water, and freshly squeezed lemonade as drink options with children's meals in 2012,<sup>37</sup> Taco Bell announced the elimination of children's meals and toys in 2013,<sup>38</sup> and McDonald's and Wendy's announced they would promote only water, milk or juice as the beverage choice with children's meals in 2013 and 2015 respectively.<sup>39,40</sup> While we cannot say these changes were in direct response to the Santa Clara and San Francisco ordinances, it is evident restaurants were feeling more pressure to offer healthier items to children at their restaurants.

## **H. Strengths and Limitations**

Limitations of this study include the small sample size, which precluded inferential statistics. Because this ordinance only applied to restaurants in the city of San Francisco, these results could not be applied to another city if a similar ordinance was passed. Additionally, while the CMA tool was tested for baseline inter-rater reliability, it has not been tested for criterion or concurrent validity. Finally, while research shows a healthful food environment (healthy meal choices and less toy marketing) supports healthier food choices,<sup>41</sup> we do not know if the positive food environment changes observed in this study led to positive changes in purchasing or consumption behavior.

Despite these limitations, this was the first study to evaluate the efficacy of a citywide ordinance that banned the distribution of free toys with children's meals not

meeting minimal nutrition criteria. While the sample size was small, it represented the fast food landscape of San Francisco. Additionally, because time point 1 and time point 4 were seasonally matched, this diminishes seasonal effects on the data. This study contributes to the existing field of research on fast food environments, toy marketing to children, and restaurant responses to legislation.

## **I. Conclusion and public health implications**

The results of this study provide unique information to public health officials and policy makers that may help guide them if proposing similar ordinances to the “Healthy Food Incentives Ordinance.” Based on our findings, the wording of future ordinances appears to be crucial to its success, so time and care should be spent ensuring the words chosen will produce the desired outcomes of the ordinance. Furthermore, because most improvements were seen in restaurants between time point 1 and time point 2 (seven months after the ordinance was passed), it appears restaurants will react quickly and may need less than a year to comply with such an ordinance. While this ordinance was not necessarily effective from a nutritional standpoint, it was effective in raising awareness about the nutrition and marketing issues observed in fast food environments. Within the year the San Francisco ordinance was passed, global and national fast food restaurant chains made positive changes to their children’s menu and marketing practices. Public health officials and policy makers should consider these and related findings when assessing the goals and challenges of ordinances similar to San Francisco’s “Healthy Food Incentives Ordinance.”

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