Children’s Exposure to Food Dyes at School: 
Time for a Policy Change

By

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A Master’s Paper submitted to the faculty of the 
University of North Carolina at Chapel Hill 
in partial fulfillment of the requirements for the degree of 
Master of Public Health 
in the Public Health Leadership Program.

May 2013

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ABSTRACT

Artificial food colors (AFCs) have become ubiquitous in the standard American diet. Average intake of AFCs has increased 5-fold in the past 20 years. Mounting evidence links the consumption of AFCs to symptoms of hyperactivity and inattention in children both with and without known, previous hyperactivity. Additionally, food dyes deceive consumers into thinking foods are higher in nutritional content than they really are, making it more difficult to follow current dietary recommendations. Both of these factors are relevant to the school environment.

Hyperactivity and inattention in early elementary grades are known to predict poor academic outcomes by adolescence. Children meeting dietary guidelines for nutrition are better equipped to learn. By establishing policies that reduce children’s exposure to AFCs at school, school officials may reduce the amount and degree of hyperactivity and inattentiveness in the classrooms and more easily support children in consuming a healthy diet. The development and implementation of local, school policies to eliminate food rewards and remove food from celebrations presents the most viable policy option for reducing AFC consumption in schools.

Public health can support local school policy by developing interventions within the three core functions of public health: assessment, policy development, and assurance.
ACKNOWLEDGEMENTS

First, I wish to thank Susan Randolph for her clear and steady guidance and Lauren Brady for her expert point-of-view. Thank you, too, to my family, friends, and colleagues for encouraging and supporting me through some busy and challenging weeks. Finally, my unending gratitude goes to my husband and son for their patience, love, and support.
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CHAPTER I

INTRODUCTION AND BACKGROUND

Food dyes, also known as color additives, enhance the appearance or provide information about foods, cosmetics, and medications that contain them. Natural and artificial colors provide the visual appeal for cosmetics. Colors are used to identify certain medications or doses (Barrows, Lipman, & Bailey, 2009). In foods, both natural and artificial colors are used to replace color lost during processing, to provide an even color for food products, and to create and sometimes identify flavors for “fun” foods, like candy (International Food Information Council Foundation & US Food and Drug Administration [US FDA], 2010). Food dyes, however, do not contribute to the nutritional value of foods and provide no health benefit to consumers. On the contrary, mounting evidence indicates that consumption of artificial food colors (AFCs) may be harmful for some people, particularly children. Consumption of foods containing AFCs may contribute to increased hyperactivity and other behavioral problems among youth, can cause allergic reactions, and makes it difficult for children and their families to follow current dietary recommendations (Arnold, Lofthouse, & Hurt, 2012; Kobylewski & Jacobsen, 2010; US Department of Agriculture [USDA] & US Department of Health and Human Services [USDHHS], 2010). Given that many children eat more than half of their daily calories in school, concerns over exposure to AFCs should be addressed in the school environment (Gordon et al., 2007).

This paper will consider policy alternatives to best support the reduction of children’s AFC consumption in school. An analysis of the most viable alternatives will yield a policy recommendation for action and recommendations for public health to support such action.
Behavioral Effects

The effects of AFCs on child behavior have been a concern since the 1970s. Early research suggests that 11% of children previously identified as hyperactive experience an exacerbation of their symptoms with reintroduction of AFCs into their diet within the context of an elimination study (Arnold et al., 2012). However, the effect does not appear to be limited to children known to be hyperactive—10% of the control children experienced similar effects. Effects included not only hyperactivity, but also symptoms that fall outside the diagnostic criteria for attention-deficit/hyperactivity disorder (ADHD), including irritability, restlessness and sleep disturbance (Egger, Carter, Graham, Gumley, & Soothill, 1985) (see Appendix A).

More recently, the impact of AFCs was examined in a population of pre-school children, age 3, and a cohort of 8- to 9-year-olds. In a 2004 study, researchers in Southampton, England found that a mixture of AFCs and a food preservative significantly increased hyperactivity and inattention symptoms (referred to in this paper as HI-s) in a group of 3-year-olds from the general population (Bateman et al., 2004). A follow-up study in Southampton in 2007 confirmed these findings and extended the findings to include a sample of 8- to 9-year-olds. In a summary of the past 35 years of research on this topic, Arnold et al. (2012) concluded that the effects of AFCs appear to exist in the general population and are not limited to ADHD. With the majority of children (60%) possessing the genetic marker for vulnerability to the AFC effect, the authors express concern that the deterioration of behavior from AFCs may have a significant negative impact on classroom environments and learning (Arnold et al., 2012).

Critics of the Southampton studies cite the relatively small effective size (1.8), asserting that this effect would likely not create a significant clinical difference for individuals. While this might not be a significant concern from a clinical perspective, the results could be quite
significant from a public health perspective (Arnold et al., 2012). Dr. Bernard Weiss of the Department of Environmental Medicine at the University of Rochester Medical Center offers the following analogy to illustrate how significantly this effect size can impact population health. Given a traditional IQ test distribution, 2.3% of the population will score below 70, an IQ level that schools consider in need of special attention. Shifting the distribution by an effect size of 0.2 would result in 3.6% of the population scoring at this level. This change would result in more than 990,000 children in the US moving below the 70 point threshold for IQ, a change of significant magnitude. At the population level, the effect size observed in the Southampton studies and many of the preceding studies can be significant in terms of shifting population-level health outcomes (Weiss, 2012).

Additionally, critics point out the inconsistency in response to AFCs, citing that some children experienced significant increases in HI-s while many did not experience any effect (US FDA, 2011a). Again, Weiss argues that these differing responses do not indicate that this is not a health concern. Biomedical research is often focused on discovering and treating particularly sensitive or vulnerable populations, and that federal standards and regulations are often directed at protecting these sub-populations (Weiss, 2012).

**Allergic Reactions**

Allergies are another risk posed by AFC consumption. According to Kobylewski and Jacobsen (2012), they documented that nearly half of the US FDA-certified AFCs cause mild to severe allergic reactions. Additionally, their research has identified an immune mechanism by which food additives, including AFCs, may contribute to the significant increase in allergies and asthma observed over the past few decades. In the 1980s, the Joint Council of Allergy and Immunology singled out one AFC, FD&C Yellow No. 5, as a particular concern, asserting that
product labeling was not adequate to protect the public, as allergic reactions can occur quickly and without warning (Kobylewski & Jacobsen, 2012).

**Barrier to Following Nutrition Recommendations**

The AFCs are also a barrier for people attempting to follow the federal dietary guidelines by purchasing and consuming healthful foods (USDA & USDHHS, 2010). First, the presence of artificial coloring can be deceptive. Colors can imitate the presence of high nutrient foods like fruits and vegetables. For example, Betty Crocker’s SuperMoist Carrot Cake Mix packaging exhibits a delicious looking cake which appears to contain carrots; however the “carrot flavored pieces” are made of corn syrup, enriched wheat flour, corn meal, hydrogenated oil, and FD&C Yellow No. 6 and FD&C Red No. 40 (General Mills, 2013).

Additionally, the high level of marketing of AFC-containing food products makes them irresistible to children. Food marketing clearly influences children’s food preferences, as well as their requests for specific foods from the people who buy their food (McGinnis, Gootman, & Kraak, 2006). The overwhelming majority of food—99%—marketed to children does not meet nutrition standards for foods recommended for regular consumption (Kunkel, McKinley, & Wright, 2009). These highly marketed, low nutrient foods are the same foods most likely to contain AFCs (Center for Science in the Public Interest [CSPI], 2008).

**History and Definitions of Food Dyes**

Naturally derived color additives have been used in cosmetics and food products since the time of the early Egyptians. Synthetics, originally made from coal-tar first emerged in the mid-19th century. Modern food dyes are developed from petroleum-derived raw materials (Barrows et al., 2009).
The USDA provided the first federal oversight of AFCs. In the early 1900’s Congress passed the Food & Drug Act which prohibited poisonous or deceptive AFCs and set the stage for voluntary certification of these additives. The US FDA took charge of this oversight when it was established as a federal agency in 1927. Mandatory certification of AFCs was established by the Federal Food, Drug & Cosmetic Act of 1938. The modern procedure for determining a color additive to be “suitable and safe” for use was implemented in 1960 (Barrows et al., 2009).

In 1960, 200 commercial color additives were used in food, cosmetics, and pharmaceuticals. Today, the US FDA lists 40 approved food colors in two categories: synthetic, petroleum-derived dyes (9) and naturally derived (31 from plants, minerals, or insects) (Barrows et al., 2009). Currently, the US FDA regulates these food colors through three mechanisms. First, the agency maintains a listing of color additives, both natural and synthetic, along with their safe, intended uses in the Code of Federal Regulations. Next, the US FDA administers a certification program for the synthetic colors or AFCs, which require batch certification. These certified colors are described as either dyes—water soluble and best used in products like beverages, dry mixes, and dairy products—or lakes—not soluble in water and commonly used in products containing fats, e.g. cake mixes and relatively dry products, such as chewing gum (International Food Information Council Foundation & US FDA, 2010). Finally, regulation occurs through examining the use of AFCs, which includes addressing misuse and monitoring product labeling for these chemicals (Barrows et al., 2009).

**AFC Consumption**

The quantities of food dyes certified for use in the US has grown five-fold since 1950 (as cited in Kobylewski & Jacobsen, 2010). See Figure 1.1. Most of the certified dyes are intended
FIGURE 1.1

PER CAPITA CERTIFICATION OF AFCS IN THE US, 1950-2010

Source: Stevens, L. (personal communication, March 15, 2013)
for food products; therefore it is reasonable to assert that consumption of food dyes in the US has been on the same, growing trajectory (Kobylewski & Jacobsen, 2010).

The average American consumes 45 mg of AFCs daily. High-intake consumers ingest an estimated 450 mg per day (US FDA, 2011a). These quantities point out a significant gap in the research on food dyes. In their 2007 investigation of the health effects of food dyes, McCann et al. utilized quantities of AFCs much lower than the levels ingested by high-intake consumers and, often at lower levels than what is ingested by average consumers. The 2007 Southampton study used a range of 20mg to 62.4mg of a mix of AFCs for each child in the study (McCann et al., 2007). The highest amount used in this study is only slightly higher than the 58mg of AFC found in one serving of commercially prepared red frosting (58mg FD&C Red No. 40), which a child would consume in one, iced cupcake (Feingold Association of the United States, 2011). A 30kg child who consumed 4 such cupcakes would exceed the FDA’s acceptable daily intake (ADI) for Red No. 40, a measure based on the no observed effect level in animal studies (US FDA, 2011a).

Consumers also have no way of calculating their own consumption of AFCs. While food labels do indicate the presence of AFCs in foods, a simple investigation of food labels reveals that food manufacturers are not required to disclose quantities of dyes contained in food products.

**Recent US Regulatory Efforts**

The growing evidence that AFCs negatively impact health has spurred efforts to strengthen AFC regulation. Efforts in the US and Europe have resulted in quite different conclusions. In 2011, the US FDA’s Food Advisory Committee (FAC) held a hearing to address
a petition brought before the agency by the CSPI in 2008. The CSPI (2011) asked the US FDA to:

1. Revoke approval for 8 of the synthetic food dyes;

2. Require a warning on foods stating that the artificial colors contained in the product cause hyperactivity and behavioral problems in some children;

3. As an interim step, update consumer information on the US FDA website to reflect this danger; and

4. Include neurotoxicity testing in the protocol for testing new food ingredients.

Further, CSPI presented evidence supporting the need for enhanced regulation, citing much of the evidence discussed in the section regarding behavior effects of AFCs.

The FAC members did not consider the question of banning AFCs. The majority (72%) asserted that a causal link between AFCs and behavioral disturbances in children, including hyperactivity, has not been established by the current research. The group was split on the labeling decision with 43% voting in favor of the labeling and 57% opposing. The committee was more closely (93%) aligned in their decision to recommend that additional research is needed to identify the conditions, if any, under which the continued use of color additives is safe (US FDA, 2011b). The US FDA did acknowledge the emerging evidence and agreed that AFCs cause behavioral disturbances in some children (US FDA, 2011a).

In December 2011, CSPI again petitioned the US FDA asking the agency to require the presence of color additives, both natural and synthetic, be identified on the principal display panel of packaged foods. The organization claimed that:
1. Consumers wanting to select healthful foods may buy foods seeming to contain more nutritious ingredients, e.g., fruits or whole grains, but instead contain less wholesome ingredients hidden by color additives;

2. Consumers are misled to believe certain products contain higher quality and/or more healthful ingredients than it actually does; and

3. Food colors may present health risks, including allergic reactions, small cancer risk and negative impacts on some children’s behavior (CSPI, 2011).

The US FDA has not yet taken action on this petition (CSPI, personal communication, February 17, 2013).

**European Regulation**

Regulatory efforts in Great Britain and Europe have come to different results than efforts in the US. The Food Safety Authority (FSA), Great Britain’s equivalent of the US FDA, has taken a precautionary approach, strongly encouraging the food industry to eliminate the six food colorings indicted in the Southampton studies discussed above. Two of these AFCs are utilized in the US as FD&C Yellow No. 5 and FD&C Red No. 40. As a result of the FSA’s concerns, the European Union’s Environmental Committee voted in 2008 to ban AFC use in food intended for babies and young children (Crowley, 2008). Britain’s concerns led to warning labels becoming law in all of Europe. In 2010, the European Union began requiring food manufacturers to include labels indicating the presence of the “Southampton Six” AFCs in food products. The warning labels state that the colors contained in the product, “may have an adverse effect on activity and attention in children” (US FDA, 2011a, p. 3).
Industry Response

Multi-national corporations, like Kraft, Kellogg’s, McDonalds, and Coca-Cola have responded to Great Britain’s demands for food products that do not contain AFCs. These companies have eliminated AFCs from many popular products in Great Britain—Lunchables, M&M’s, Skittles, and Pop-Tarts, for example (as cited in CSPI, 2008). However, these same companies manufacture separate products for the US market which still contain AFCs. To illustrate, Kellogg’s Nutri-Grain Bars are made with naturally derived colors for sale in Great Britain. The same product with nearly the same packaging is sold in the US containing AFCs (CSPI, 2012).

Grocers have followed suit. Five of the largest supermarket chains in Great Britain have pledged to eliminate AFCs from at least 99% of their store brand products. Similarly, major national chains in the US, such as Whole Foods and Trader Joe’s, as well as regional chains like the South-East’s Earthfare, do not sell any products containing AFCs (as cited in CSPI, 2008; Earthfare, 2013).
CHAPTER II
LITERATURE REVIEW

The impact of AFCs on behavior and dietary intake are relevant factors to consider for children in school environments. Given the high priority placed on academic achievement in the US (US Department of Education, n.d.) and the large, well-documented link between educational attainment and health (National Poverty Center, 2007), these impacts merit closer examination.

Effects on Academic Achievement

HI-s

A significant body of research links HI-s to poor educational outcomes. Evidence suggests that poor academic outcomes, both short-term and long-term, occur for children both with and without formal diagnoses of ADHD (Merrell & Tymms, 2001). The majority of the research bases its classification of ADHD or HI-s without a diagnosis of ADHD on the DSM-IVTR definitions for the disorder (Arnold et al., 2012) (see Appendix A).

Short-term characteristics. Children diagnosed with ADHD and those with HI-s but not diagnosed with ADHD both exhibit short-term academic underachievement as compared to their peers. Pre-school students with HI-s are already likely to trail their peers in academic readiness (DuPaul, McGoey, Eckert, & VanBrakle, 2001; Mariani & Barkley, 1997). In children age 5 to 7, those with significant HI-s scored increasingly lower than control peers on math and reading tests over the course of two school years (Merrell & Tymms, 2001).

Long-term outcomes. Convincing evidence exists that the negative correlation between HI-s and academic success persists into the teen years and beyond. The effects appear to be a linear relationship with children having the greatest levels of HI-s experiencing the most
undesirable outcomes (McGee, Prior, Williams, Smart, & Sanson, 2002). In two longitudinal studies, HI-s in children age 5 to 8 were significantly associated with poor literacy, problems with school work, and leaving school before graduation among high-school aged students. Additionally, HI-s in early elementary ages correlate with an adolescent behavior pattern characterized by substance abuse, conduct disorder, and a history of arrest (McGee et al., 2012). Children with higher levels of HI-s in early childhood were four times more likely to exhibit difficulties with school, i.e., getting along with teachers, problems related to attention and impulsivity, and difficulty with school work and homework, during adolescence as compared to those with the lowest levels (McGee et al., 2002).

Another long-term study retrospectively followed a birth cohort through high school graduation. Students with HI-s and/or a diagnosis of ADHD were 2.7 times more likely to drop out of school before graduation and 3 times more likely to be retained to repeat a grade level (Barbaresi, Katusic, Colligan, Weaver, & Jacobsen, 2007). A 2009 longitudinal study confirms earlier findings that children with HI-s are at risk for negative academic outcomes, showing a two to three times greater likelihood of children with high levels of HI-s to experience a wide range of negative academic outcomes than those with low levels of HI-s. Outcomes assessed included performance in academic subjects, diploma achievement, and grade retention. This study found these associates to exist independent of other predictors, including conduct disorders and low socio-economic status (SES) (Galéra, Melchior, Chastang, Bouvard, & Fombonne, 2009).
**Nutrition**

In contrast to the significant evidence for the impact of HI-s on academic achievement, research examining the effect of nutrition and academic achievement is limited. Some evidence links poor diet to brain impairment.

Three decades of animal studies provide significant evidence that diets high in saturated fat and refined sugars can damage various systems in the brain and negatively impact cognitive performance, learning, and memory (Francis & Stevenson, 2013; Molteni, Barnard, Ying, Roberts, & Gómez-Pinilla, 2002). A very recent examination of both animal and human studies demonstrates evidence of an association between a diet high in saturated fat and refined sugars and impaired cognitive function in humans. Additionally, the evidence suggests that this type of diet contributes to the development of ADHD and some neurodegenerative conditions (Francis & Stevenson, 2013).

**Allergies**

While allergies were identified as one of the health risks of AFC consumption, there is no evidence that this occurs at significant enough levels to be of concern in school environments. However the Joint Council of Allergy & Immunology does single out some AFCs, calling for their removal from the food supply (Kobylewski & Jacobsen, 2010). Eliminating AFCs removes any risk that sudden and unexpected serious reactions could occur in the school setting.

**Gaps in the Literature**

**HI-s and Academic Achievement**

Additional research examining the linear relationship between Hi-s and academic/educational outcomes would help shed light on the significance of small population-level shifts in HI-s. Given the explosion in consumption of AFCs, knowledge about the dose
relationship to resulting HI-s can help guide efforts to protect vulnerable children from the harmful effects, particularly in light of the established linear relationship between HI-s and poor academic and social outcomes.

As for knowing how to improve academic outcomes for children with ADHD and HI-s, Loe & Feldman (2007) described interested academics as “ill informed” (p. 88). They go on to recommend more research on a wide range of interventions and call for a broad coalition of parents, healthcare providers and educators to advocate for an, “ambitious research agenda” (p. 88).

**Nutrition and Academic Achievement**

As described by Francis & Stevenson, research into poor diet and brain function is a nascent field (2013). What is clear in the context of this paper is that the preponderance of foods containing AFCs contributes to the high saturated fat, high refined sugar diets described in the literature as damaging to cognitive function. Reducing children’s exposure to these foods will improve their nutritional statuses.

**AFCs and Academic Achievement**

While the evidence supports that AFCs pose a small, deleterious effect on children, little has been written about the implications of these findings on population level health, with no studies directly examining the potential link between AFC consumption and academic achievement. How many students, nationwide, may be pushed over the clinical threshold for ADHD from AFC consumption? Researchers have expressed concern that the behavioral effects of AFC consumption could negatively impact classroom environments (Arnold et al., 2012).
CHAPTER III
POLICY ANALYSIS

The current body of evidence does not describe a causal link between AFC consumption and the attention, hyperactive, and nutritional problems linked with poor academic outcomes. However, the growing evidence of association between AFC consumption and these issues is significant enough to warrant further investigation, as well as the implementation of precautionary measures while awaiting further research. Without action, a portion of this generation of students maybe left behind academically because of their sensitivity to petroleum-based, food additives that provide no nutritional benefits. Schools are in a unique position to positively influence children’s food consumption and attitudes about food. School policies can help create healthy food environments.

Given the US FDA’s 2011 ruling against any additional warnings or labels, federal policy alternatives will not be considered. The following analysis will consider state and local level policy alternatives to reduce children’s consumption of AFCs.

Policy Goal and Objectives

Goal

Identify policy alternatives that best support reducing the negative affects of AFCs on children’s attention and hyperactivity in the classroom, capacity to meet dietary guidelines, and likelihood of avoiding allergic reactions in school.

Objective 1

Assess selected state and local level school policy approaches utilizing specific evaluation criteria.
Objective 2

Recommend a policy alternative that will decrease children’s exposure to AFCs in school.

Stakeholders

The success or failure of public policies is often strongly related to the support of or opposition to the policy as expressed by a variety of interest groups with opposing views. The viability of a particular policy alternative often hinges on the balance of strength and intensity between the opposing views. The following interest groups have a stake in any policy aimed at reducing AFC consumption in schools (see Appendix B for a detailed list of stakeholders).

Color Manufacturing & Food Industries

During the recent attempts to tighten US FDA regulation on AFCs, the color manufacturers maintained strong opposition, asserting that their products meet the current US FDA requirements for safety (International Association of Color Manufacturers, 2010). Grocery manufacturers echoed the same sentiment, supporting the safety of their products containing AFCs (Grocery Manufacturers Association, 2011). Neither industry directly addresses the concerns found by the Southampton studies. Both industries are likely to oppose any attempts, whether at the state or local level, to specifically restrict consumption of products containing manufactured colors.

Public Interest Groups

The CSPI has been advocating for food safety, nutrition, and health since 1971 (CSPI, 2012). In 2008, they petitioned the US FDA, requesting that AFCs be removed from use in foods (CSPI, 2008). Their ongoing advocacy efforts, including a pending petition with the FDA, are
directed to federal decision-makers, and while they might support other levels of action, they are not likely to be an active participant in advocacy at the state and local levels.

**Schools**

While the color manufacturing industry and CSPI provide consistent voices in opposition and support of regulation of AFCs, school personnel, by the nature of their diversity, are more apt to be divided on this policy issue. Within the state and local school systems, one could expect to find champions both for and against policies to reduce AFC consumption. This is a relatively new policy idea for schools with little precedent for adoption. However, for some state and local administrators, teachers, school nurses, and staff, this may present a new possibility for making a positive contribution to the classroom environment and, consequently, student achievement, particularly for the academically vulnerable kids with HI-s. On the other hand, some school stakeholders may be more prone to adopt the wait-and-see stance of the US FDA.

**Parents**

Like school stakeholders, parents will represent a wide spectrum of opinions on this topic. Vocal opponents may not wish to relinquish any individual freedoms, like sending brightly colored cupcakes to school for a child’s birthday. Vocal proponents may champion this idea of reducing AFC consumption in schools as a means to create a classroom environment more conducive to learning and supportive of healthy living for all children. Parents, in general, are likely to be relatively unfamiliar with the current debate over AFCs and their link to HI-s.

In a survey of the general American public, 74% of adults were supportive of a requirement that foods artificially colored contain labels disclosing that fact on the front of their packages (CSPI, 2011). This strong support suggests that the general public, once informed about potential risks from AFCs, may be sympathetic to efforts to reduce children’s consumption
of AFCs, particularly in a situation, like school, where children and parents have little knowledge of or control over consumption.

Special interest parent groups, like the Feingold Association of the United States, have been championing the elimination of AFCs from the food environment for more than 30 years. They are likely to support any such efforts no matter the level of policy intervention.

**Students**

Students are another stakeholder group expected to hold differing opinions. Student advocacy groups have a strong record of success in championing policy efforts that support healthy living (Youth Empowered Solutions, n.d.). Such advocates could be a strong voice for policies to reduce AFCs. On the contrary, student groups may oppose restrictions on their choice of food products. Additionally, student groups often raise funds by selling AFC-containing food products like candies.

**Government**

State level government agencies often cede control of policy specifics to local entities. For example, in North Carolina, the Department of Public Instruction and Department of Health and Human Services have created a collaborative infrastructure called NC Healthy School. They provide guidance to local school districts, referred to in this paper as local education authorities (LEAs), on implementing a Coordinated School Health Plan; however, details about the school environment, including specific food served in schools, outside of the federally regulated National School Lunch Program, are left to the discretion of the LEAs (North Carolina Healthy Schools, n.d.; USDA, n.d.).
County health departments focus on population health. Once knowledgeable about the population health risks from AFCs, health departments are likely champions to convene stakeholders to further investigate this topic.

**Evaluation Criteria**

Each of the policy alternatives will be evaluated according to five evaluation criteria: technical feasibility, value acceptability, tolerable cost, public acquiescence, and receptivity among decision makers. Technical feasibility refers to the likelihood the policy would actually accomplish a reduction in children’s consumption of AFCs in schools, as well as the ease of which the policy can be administered. Value acceptability examines the public health ethical concerns of autonomy, beneficence, and justice (Rosenau & Roemer, 2008) and how the alternative is perceived by stakeholders. When evaluating tolerable cost, the cost from a resource perspective, i.e., time, money, and personnel, needs to be analyzed in comparison to the likely benefit. Public acquiescence explores likely stakeholder support versus opposition for an alternative. Finally, receptivity among decision makers, while often reflecting public opinion, appraises the mood of those with the final say so on a policy matter with regard to the issue at hand (Kingdon, 2003). Table 3.1 identifies the measures used to score each of the criterion.

**Policy Alternatives**

Taking steps to reduce children’s exposure to AFCs is a recommended precautionary stance to provide the best protection for children until more definitive evidence reaches the US FDA’s burden of proof level to mandate front of package labeling or to completely remove AFCs from food products (Arnold et al., 2012). Meanwhile, strategies to reduce AFCs can also improve the likelihood of children’s diets conforming to USDA nutrition recommendations and avoiding unexpected allergic reactions to the non-nutritive additives. The following analysis
### TABLE 3.1

**EVALUATION CRITERIA FOR ANALYZING ALTERNATIVES**

<table>
<thead>
<tr>
<th>Evaluation Criteria</th>
<th>Low (1 point)</th>
<th>Med (2 points)</th>
<th>High (3 points)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical feasibility</td>
<td>Accomplishes goal</td>
<td>Likely to reduce AFC consumption in schools</td>
<td>Strong likelihood to reduce AFC consumption in schools</td>
</tr>
<tr>
<td>Ease of administration</td>
<td>Requires significant system change to administer</td>
<td>Requires some system change to administer</td>
<td>Easily administered within current systems</td>
</tr>
<tr>
<td><strong>Value acceptability</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Autonomy                             | - Completely eliminates self-determination for key stakeholders **OR**  
|                                      | - Completely eliminates benefit to society               | - Allows for some self-determination for key stakeholders **AND**  
|                                      |                                                          | - some benefit to society, but one benefit clearly outweighs the other  
| Beneficence                          | - Harmful to individuals **AND** population             | - Harmful to individuals **OR** population              | - Avoids harm for individuals **AND** the population      |
| Justice                              | Significant unequal access for some                      | Some unequal access for some                            | Equal access for all                                      |
| Tolerable cost                       | Requires significant new allocation of time, money or personnel | Requires some new allocation of time, money or personnel | Requires no new allocation of time, money or personnel    |
| Anticipated public acquiescence       | Opposition from most stakeholders                        | Balance of acceptance and opposition from stakeholders  | Acceptance from most stakeholders                         |
| Receptivity among decision makers    | - Approval from key decision makers unlikely **AND**  
|                                      | - no identifiable champions among decision makers        | - Approval from key decision makers uncertain **AND**  
|                                      |                                                          | - at least one identifiable champion among decision makers |                                                          |
|                                      |                                                          |                                                          | - Approval from key decision makers likely **OR**       |
|                                      |                                                          |                                                          | - multiple identifiable champions among decision makers |

Lowest possible score = 8  
Highest possible score = 24

Source: Developed by Braasch, 2013
evaluates viable policy alternatives using the criteria outlined above to reach the stated policy objectives. The policies considered are:

1. Maintain the status quo of taking no measures to provide education regarding the potential risks of AFCs or to reduce children’s exposure to AFCs in schools;
2. Implement a state-level ban of AFCs in schools; or
3. Adopt local educational authority (LEA)-level policies to decrease AFC consumption in schools by eliminating food-based rewards and celebrations in schools. Where state specific information is relevant for the analysis, North Carolina information will be presented as an example.

**Alternative #1—Maintain the Status Quo**

The path of least resistance would be to take no action to reduce children’s exposure to AFCs in schools. In support of this option, the policy action, or rather, non-action, presents no challenges, technically or politically. Additionally, there is no added cost incurred. The consumption of AFCs is not a mainstream policy issue, and many of the relevant stakeholders, i.e., parents, teachers, administrators, and students, are likely unaware of the risks; therefore strong opposition to this policy option is unlikely.

Weighing against the viability of maintaining the status quo, however, is the fact that the approach completely ignores the potential benefit that could be realized by reducing children’s exposure to AFCs in schools on the population level. With the status quo, classroom environments will continue to exclude some children who avoid specific foods because of AFC sensitivities and other food. Table 3.2 scores alternative #1 according to the evaluation criteria.
**TABLE 3.2**

EVALUATION OUTCOME: STATUS QUO ALTERNATIVE (SUMMARY)

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Status Quo maintains current system (2)</td>
<td>Will result in no progress toward goal (1)</td>
<td>Does not include any public benefit (1)</td>
<td>Does not demand any new resources (3)</td>
<td>Many stakeholders currently unaware of risk and neutral by default (2)</td>
<td>Status quo is easy for decision makers (3)</td>
</tr>
<tr>
<td></td>
<td>Status quo</td>
<td>Ignores any risk to sensitive individuals and population (1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Classrooms not inclusive of children with sensitivity or allergies to AFCs (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Developed by Braasch, 2013
Alternative #2—Implement State-level Ban of AFCs in Schools

Another alternative considered to reduce children’s exposure to AFCs is a state level ban of AFCs in schools. While state boards of education have the authority to regulate food offerings in schools, no precedent exists for the ban of AFCs (National Association of State Boards of Education, 2013). The effort to pass and implement a policy banning AFCs at the state level would be considerable. Using the NC tobacco-free schools initiative as an example, significant momentum for banning tobacco use in schools began in the late 1990’s; however, a complete state-level ban was not put in place until 2008 when 75% of schools had already voluntarily adopted such policies (Centers for Disease Control and Prevention, 2009).

When examining the likelihood of the policy accomplishing the stated objective, the current NC Healthy Active Children policy offers some insight. The NC Healthy Active Children policy requires schools to provide 150 minutes of moderate physical activity weekly for all students. By self-report, only 50% of schools meet the standard (NC Healthy Schools, 2011). State level policies do appear to impact children at the school level, but with only partial efficiency.

With the policy, children would still be exposed to AFCs through school lunches. The USDA’s National School Lunch program sets the standards for participating schools. These standards base a food safety policy on the current US FDA recommendations which allow AFCs to be used in foods (National Food Service Management Institute, 2013).

Addressing the policy goal with a state-level ban discounts many stakeholders’ autonomy and self-determination, and removes students, parents, teachers, and LEAs from the decision-making. A strength of the policy is that it addresses the risks from AFCs for both individuals and at a population level.
If the time frame required to pass the policy approaches that which was seen with tobacco-free schools, significant personnel and time resources would be utilized to bring the policy to fruition. Given current public discussion regarding ever-shrinking school budgets, it would likely be very difficult to manifest new resources at the state level to support a precautionary policy.

The policy does not currently have a significant voice in the public sphere. Many stakeholders are likely unaware of the potential risks from AFCs and apt to respond in opposition based on concerns for individual choice. Additionally, a state-level policy would earn the attention of the food industry, which has opposed any efforts to increase warning about risks from AFCs or to regulate their use. The attention would bring out strong voices and financial resources to stop the policy effort.

Given that no precedent exists for a state-level ban on AFCs, key leaders are likely to revert to the current national position, as expressed by the US FDA. A strong champion for this position is needed among state-level leadership to make any headway in moving the policy. Table 3.3 scores policy alternative #2 according to the evaluation criteria.

**Alternative #3—LEAs Adopt Healthy Classroom Policies, Including No Food Rewards and Celebration Rules**

A viable option for achieving the stated policy goal is for LEAs to adopt healthy classroom policies which include rules against the use of food as reward for student behavior and to eliminate food-based celebrations. School districts around the country have adopted these types of policies in response to concerns about nutrition and food allergies. Model policies are available to support LEAs in drafting the language for such a policy. In a nation-wide poll, 40%
<table>
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</tr>
</thead>
<tbody>
<tr>
<td>Would likely reduce AFC consumption in schools (2)</td>
<td>Completely removes self-determination from schools, students and families (1)</td>
<td>Significant staff time required to move this policy to passage by school board; resources needed to educate schools regarding policy implementation (1)</td>
<td>Many stakeholders unaware of risk and likely to respond in opposition based on concerns for individual choice; state-level policy likely to earn attention of food industry (1)</td>
<td>No precedence for ban at this level; key leaders likely to follow current US FDA position (1)</td>
<td></td>
</tr>
<tr>
<td>Requires significant administrative effort; no precedent (1)</td>
<td>Removes risk from AFCs from the environment, reducing harm to individuals and population (3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classroom inclusive of children sensitive or allergic to AFCs; equally applies to all (3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Score:** 14

Source: Developed by Braasch, 2013
of schools reported having policies prohibiting food-based rewards (Turner, Chriqui, & Chaloupka, 2012). Across the country, momentum is growing to move away from sugar- and fat-laden treats for birthday parties and other celebrations in schools. North Carolina’s Departments of Public Instruction and Public Health already recommend that schools replace traditional celebrations with healthy or non-food alternatives (NC Department of Public Health, NC Department of Public Instruction, NC Cooperative Extension, & NC Action for Healthy Kids, 2005).

The technical implementation of this policy could build upon the existing infrastructure created by the LEAs to comply with the federal requirement to have a school wellness policy (Healthy Hunger-Free Kids Act, 2010). In NC, schools address school wellness policies through their School Health Advisory Councils (SHACs). Each LEA is required by NC law to maintain a SHAC (NC Healthy Schools, 2005). The existing administrative infrastructure reduces the burden on LEAs from developing and implementing new wellness policies. A no food rewards and celebration policy would accomplish the stated policy objective to reduce childrens’ school exposure to AFCs. The policy, however, would not address AFCs used in food served through the school lunch program.

From a values perspective, local control over school policy was recommended by a 100 person panel on addressing obesity in NC (Andersen et al., 2004). The LEAs maintain the control with this approach. Self-determination would be lost, however, by students, parents, and teachers for food choice in the classroom.

Individuals and the population will benefit from the policy. The risks from AFCs are removed from the classroom environment. Additionally, the policy creates an inclusive
classroom that treats children with sensitivity to AFCs or allergies to specific foods the same as their peers.

There are some personnel and time resource costs for this effort, primarily in educating staff, students, and parents on the rationale for action and involving them in the development and implementation of the policy. While some teachers and parents may express concern that developing non-food rewards and celebration options could be expensive, the fear is unfounded. Significant resources exist that can guide the creation of low- and no-cost alternatives (see Appendix C).

In locations where similar policies have been implemented, news reports identify significant efforts on behalf of both the supporters and those who oppose the policies. Both the reports and public comments reflect a balance of opinions (Edelhart, 2013; Shulte, 2008). Support for the policy can be bolstered by joining healthy weight advocates and food allergy advocates who may already have momentum toward similar policies for their own objectives. Alignment with other policy streams can also help identify champions for the policy among decision makers. Local advocates for closing achievement gaps, promoting healthy school food environments, and avoiding food allergy risks could work together on the policy, presenting a stronger, collective voice to the LEA administrators. Table 3.4 scores policy alternative #3 according to the evaluation criteria.

**Policy Analysis**

To compare the policy alternatives offered, a decision matrix (Table 3.5) was developed to assign scores to each alternative based on the evaluation criterion. The lowest possible score of 8 indicates an unviable policy alternative. Scoring closer to the highest score of 24 indicates a policy alternative with a strong chance of being adopted and achieving the policy objective.
### TABLE 3.4

**EVALUATION OUTCOME: LEA REWARD AND CELEBRATION POLICY**

**(SUMMARY)**

<table>
<thead>
<tr>
<th>Policy Alternative: LEAs Adopt a No Food Rewards and Celebrations Policy</th>
<th>Technical Feasibility</th>
<th>Value Acceptability</th>
<th>Cost Tolerability</th>
<th>Public Acquiescence</th>
<th>Decision-Maker Receptivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clearly would reduce AFC consumption in schools (3)</td>
<td>Schools would maintain control over this policy; individuals would lose control over classroom foods (2)</td>
<td>Some time and personnel resources necessary to implement policy; options exist to avoid costs for non-food rewards and celebrations (2)</td>
<td>Evidence of likely balance of opposition; local policy less likely to gain attention of food industry (2)</td>
<td>Precedence exists for policy (from a nutrition and allergy perspective); receptivity likely mixed and varied among districts; local-level champion may surface due to strong interest in achievement and nutrition (2)</td>
<td></td>
</tr>
<tr>
<td>Requires significant administrative effort to change current reward &amp; celebrations systems (1)</td>
<td>Removes risk from AFCs from the environment, reducing harm to individuals and population (3)</td>
<td>Classroom inclusive of children sensitive or allergic to AFCs; equally applies to all (3)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Score: **18**

Source: Developed by Braasch, 2013
## TABLE 3.5

DECISION MATRIX: COMPARISON OF PROPOSED POLICY ALTERNATIVES’ EVALUATION OUTCOMES

<table>
<thead>
<tr>
<th>Evaluation Criteria</th>
<th>Proposed Policy Alternatives</th>
<th>Status Quo</th>
<th>State-Level Ban on AFCs in Schools</th>
<th>LEA No Food Rewards and Celebrations Policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Feasibility</td>
<td><strong>Accomplishes goal</strong></td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Ease of administration</strong></td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Value Acceptability</td>
<td><strong>Autonomy</strong></td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td><strong>Beneficence</strong></td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Justice</strong></td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Tolerable Cost</td>
<td></td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Anticipated Public Acquiescence</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Receptivity Among Decision-Makers</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td><strong>Score:</strong></td>
<td></td>
<td><strong>15</strong></td>
<td><strong>14</strong></td>
<td><strong>18</strong></td>
</tr>
</tbody>
</table>

Source: Developed by Braasch, 2013
Creating a non-food reward and celebration policy at the local level rises to the top of the policy analysis as a viable option for achieving the policy goal of reducing children’s exposure to AFCs in schools. Its strength lies in the policy’s equitable distribution of protection to the general population of students. On the contrary, implementing the policy could be challenging given the need for many school administrators and teachers to change their systems for rewarding positive student behavior. The first policy had the lowest score because of concerns regarding local control and difficulty administering a policy banning AFCs in schools at the state level. Coming in only slightly higher than the state-level ban is the option to maintain the status-quo. Non-action scored lowest in the values category, completely ignoring any potential public benefit to action.
CHAPTER IV
SUMMARY AND RECOMMENDATIONS

Summary

The evidence against AFCs is mounting. Children who consume these non-nutritive petroleum-derived chemicals in ever increasing amounts risk experiencing HI-s, increasing existing HI-s, not achieving a healthy diet, and, for some, having dangerous allergic reactions. While the existing evidence has not convinced the US FDA to act to protect children, the evidence is too significant to ignore.

From a precautionary stance, Europe has acted to protect the public from these risks by adding warning labels to food products containing AFCs. Food manufacturers have met the European public’s demand by producing safer food options while continuing to market their AFC-containing equivalents in the US.

AFCs and their link to increased HI-s and poor nutrition pose a risk to children’s success in school. In both the short- and long-term, HI-s are negatively associated with academic success. Questions remain whether HI-s linked to AFC consumption can have a significant negative impact on classroom environments and population-level academic achievement.

Presenting a barrier to those trying to follow nutrition recommendations, food products containing AFCs can contribute to poor nutritional status which evidence suggests is linked to brain impairment. Research is needed to examine the potential link between AFC consumption and poor academic outcomes.

Schools are uniquely positioned to decrease children’s AFC consumption. This paper examines policy options to achieve that objective. The analysis points to the local option for
LEAs to establish policies eliminating the use of food as a reward and food-based celebrations as the most viable alternative to achieve the stated objective. However, none of the options scored in the highest quartile of the scoring range, which indicates the need for communication and advocacy strategies at the local level to raise awareness of this issue among the potential stakeholders and to build support for this policy from both the public and decision-makers.

**Recommendations for Public Health**

Public health has a significant role to play in moving this policy forward. Successful strategies should be applied across the three core functions of public health: assessment, policy development, and assurance (Turnock, 2009).

**Assessment**

Public health officials at the local level can engage in this policy effort through the following assessment mechanisms:

- Monitor community priorities identified in community health assessments.
- Identify public health concerns potentially affected by AFC consumption.
- Ensure that communities monitor the behavioral risk factors, i.e., HI-s, to which AFCs can contribute.
- Assess the magnitude of impact these risk factors may have on educational and health outcomes.

**Policy Development**

Building upon the foundation established through assessment strategies, local public health entities can support policy development in a variety of ways. First, developing work groups or community coalitions to address identified and relevant community needs is an effective strategy for building support for policy initiatives. For example, educational attainment
is identified in Healthy People 2020 as a primary social determinant of health, and many communities have existing coalitions that address related topics like high school graduation rates (USDHHS, 2012). This is an opportunity for public health to bring the issue of AFC consumption risks to light within the community. Other existing groups that have interest in the risks from AFC consumption are those that address health and wellness in schools or school safety issues, such as food allergies.

Another tactic supporting policy development is to raise public awareness of the risks presented by AFCs through targeted media strategies. These strategies may include engaging community partners in writing letters to the editor, speaking to editorial boards, creating public service announcements, or speaking to special interest groups, like parent-teacher associations.

Meeting with district and school level decision makers, i.e., school board members, superintendents, and principals, is a final public health policy development strategy offered to elevate the issue. These discussions would help identify potential champions and opponents to the recommended policy action, as well as create an opportunity for public health to contribute to the development of policies that impact school food environments.

**Assurance**

Public health can then help to keep policy development and implementation processes on track by: (1) aiding schools in developing a mechanism for enforcing new policies; and (2) assessing the effectiveness of policies on decreasing children’s exposure to AFCs in school. These assurance functions introduce an iterative, improvement/evaluation practice by bringing the policy development process back around to assessment.

At the state and national levels, public health agencies can add to the assurance process by supporting a strong research agenda that addresses existing uncertainties among the current
evidence. Arnold et al. (2012) lays out a comprehensive accounting of research needs to expand understanding of the impact AFCs have on public health.

Conclusion

Effort from the public health community in support of a policy to reduce children’s AFC consumption in schools aligns with public health goals supporting child health and educational attainment. Working with existing coalitions interested in child health and academic success increases the likelihood for success in achieving the policy goal. Given the impact that AFCs can have on children’s activity, attention and nutrition, taking a precautionary approach and reducing children’s AFC exposure is in the best interest of children, their families, and society. Taking the identified policy approach provides protection for this generation of children while the research community and regulatory agencies continue to gather data assessing what if any are safe levels of AFC consumption. With the consumption of AFCs growing rapidly, the time to act to protect children is now.
REFERENCES


Center for Science in the Public Interest. (2008). United States Department of Health and Human Services Food and Drug Administration: Petition to ban the use of yellow 5 and other food dyes, in the interim to require a warning on foods containing these dyes, to correct the information the food and drug administration gives to consumers on the impact of these dyes on the behavior of some children, and to require neurotoxicity testing of new food additives and food colors. Retrieved from http://www.cspinet.org/new/pdf/petition-food-dyes.pdf


Weiss, B. (2012). Synthetic food colors and neurobehavioral hazards: The view from environmental health research [commentary]. *Environmental Health Perspectives, 120*(1), 1-5.

APPENDICES

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APPENDIX A

DIAGNOSTIC CRITERIA ADHD, DSM-IVTR

DSM-IV Criteria for ADHD

I. Either A or B:  
A. Six or more of the following symptoms of inattention have been present for at least 6 months to a point that is inappropriate for developmental level:

   Inattention
   1. Often does not give close attention to details or makes careless mistakes in schoolwork, work, or other activities.
   2. Often has trouble keeping attention on tasks or play activities.
   3. Often does not seem to listen when spoken to directly.
   4. Often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behavior or failure to understand instructions).
   5. Often has trouble organizing activities.
   6. Often avoids, dislikes, or doesn't want to do things that take a lot of mental effort for a long period of time (such as schoolwork or homework).
   7. Often loses things needed for tasks and activities (e.g. toys, school assignments, pencils, books, or tools).
   8. Is often easily distracted.
   9. Is often forgetful in daily activities.

B. Six or more of the following symptoms of hyperactivity-impulsivity have been present for at least 6 months to an extent that is disruptive and inappropriate for developmental level:

   Hyperactivity
   1. Often fidgets with hands or feet or squirms in seat when sitting still is expected.
   2. Often gets up from seat when remaining in seat is expected.
   3. Often excessively runs about or climbs when and where it is not appropriate (adolescents or adults may feel very restless).
   4. Often has trouble playing or doing leisure activities quietly.
   5. Is often "on the go" or often acts as if "driven by a motor".
6. Often talks excessively.

**Impulsivity**

7. Often blurts out answers before questions have been finished.
8. Often has trouble waiting one's turn.
9. Often interrupts or intrudes on others (e.g., butts into conversations or games).

II. Some symptoms that cause impairment were present before age 7 years.
III. Some impairment from the symptoms is present in two or more settings (e.g., at school/work and at home).
IV. There must be clear evidence of clinically significant impairment in social, school, or work functioning.
V. The symptoms do not happen only during the course of a Pervasive Developmental Disorder, Schizophrenia, or other Psychotic Disorder. The symptoms are not better accounted for by another mental disorder (e.g., Mood Disorder, Anxiety Disorder, Dissociative Disorder, or a Personality Disorder).

**Based on these criteria, three types of ADHD are identified:**

IA. ADHD, *Combined Type*: if both criteria IA and IB are met for the past 6 months
IB. ADHD, *Predominantly Inattentive Type*: if criterion IA is met but criterion IB is not met for the past six months
IC. ADHD, *Predominantly Hyperactive-Impulsive Type*: if Criterion IB is met but Criterion IA is not met for the past six months.

Source: American Psychiatric Association, 2000
APPENDIX B

STAKEHOLDERS

I. Industry: Color & Food Manufacturing
   a. International Association of Color Manufacturers
   b. Grocery Manufacturers Association
   c. National Advisory Committee of the Nutrition Foundation
   d. Institute of Food Technologies
   e. International Food Information Council Foundation
   f. Certified Color Manufacturers Association

II. Public Interest Groups
   a. CSPI

III. Schools (North Carolina example)
   a. State Department of Public Instruction
   b. County and City Public School Districts
      i. District Administration (Superintendent, Child Nutrition Director)
      ii. School Board
      iii. School-based Administration (i.e. Principals, SHACs)
      iv. Teachers
      v. School nurses
      vi. Staff (nutrition/cafeteria staff; afterschool program staff)

IV. Parents
   a. Feingold Association of the US
   b. Bloggers/activists
   c. School specific parent groups (e.g. PTAs)

V. Students
   a. Organizations (e.g. student government; clubs that raise funds)
   b. At-large

VI. Government
   a. State (e.g. NC)
      i. NC Department of Public Instruction
      ii. NC Department of Health and Human Services (Division of Mental Health, DD and SA Services; PAN Branch)
   b. Local
      i. City and County Government
      ii. County Health Departments
      iii. Food Policy Councils
APPENDIX C
RESOURCES FOR NON-FOOD REWARDS AND NON-FOOD CELEBRATIONS IN SCHOOLS

Healthy and Non-Food Celebration Resources

Healthy School Celebrations
This publication from University of Colorado Medical is a comprehensive guide to healthy, non-food party planning. The document includes a party planning checklist, fun, active ideas for birthday and seasonal celebrations, and a list of non-food “goody bag” options. http://www.actionforhealthykids.org/assets/parent-toolkit/partner-resource-pdfs/healthypartyguide-cando.pdf

Healthy School Celebrations
This document from Center for Science in the Public Interest gives non-food celebration recommendations for each month of the school calendar. http://cspinet.org/new/pdf/healthy_school_celebrations.pdf

School Celebrations
This two-page document from Eat Smart, Move More, NC offers non-food and healthy food options for classroom celebrations. Sample healthier celebration policy language for classroom, school or district is provided. http://www.eatsmartmovemorenc.com/EatSmartSchoolStds/Texts/school_celebrations.pdf

Healthy Reward Resources

Student Rewards that Aren’t...Junk Food!
The parent/blogger/food activist at 100 Days of Real Food provides an extensive list of non-food rewards for individual students and classrooms. The blog entry also includes non-food fundraising and celebration ideas. http://www.100daysofrealfood.com/2011/10/31/student-rewards%E2%80%A6that-aren%E2%80%99t-junk-food/

Rewards Kids Will Crave: Non-Food Alternatives
This 30 page document shares teacher, student and parent responses to the implementation of a non-food reward policy and provides and extensive list of and instructions for alternative privileges, certificates/coupons, and prizes. http://health.utah.gov/obesity/gms/guide/RewardsKids.pdf

Constructive Classroom Rewards: Promoting Good Habits While Protecting Children’s Health
Center for Science in the Public Interests document listing the rationale and options for non-food rewards. http://www.cspinet.org/nutritionpolicy/constructive_rewards.pdf