

School environments and policies to promote healthy eating and physical activity

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The Role of Schools in Obesity Prevention

Premise:

Schools cannot solve the child obesity epidemic on their own, but it is unlikely to be halted without strong school-based policies and programs



School settings can provide nutrition and physical activity opportunities

- Four major avenues in schools:
 - school food environment
 - classroom health education
 - physical education (PE) program
 - recess time
- Community and family linkages

Dietary intake trends for U.S. children and adolescents

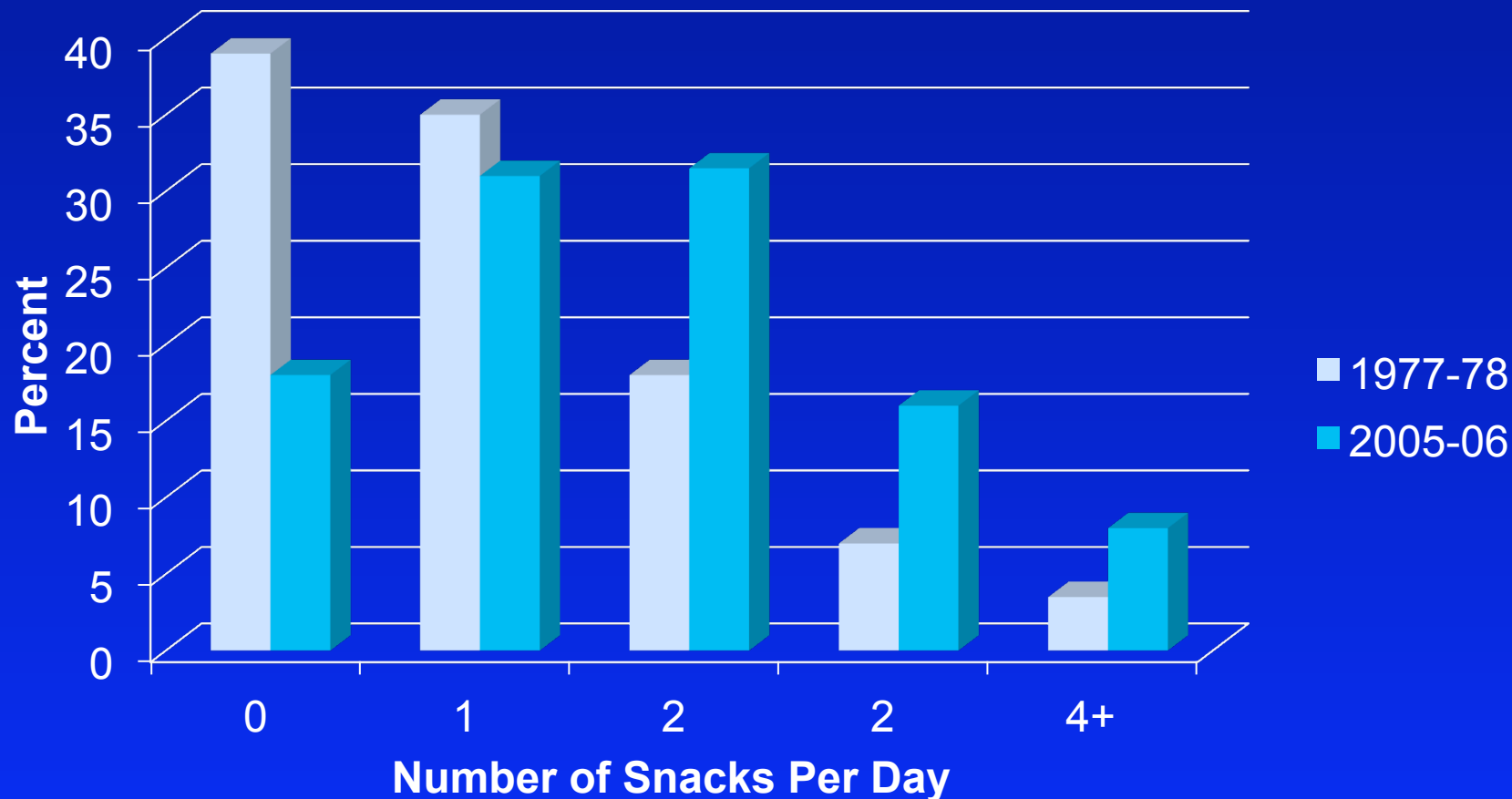
- Most have *inadequate intakes* of nutrient-dense food groups (i.e., fruits and vegetables, whole grains)
- Most consume *lower than recommended levels* of shortfall nutrients (i.e., potassium, fiber, calcium)
- Most have *excessive intakes* of energy-dense food and beverage groups (i.e., sweetened beverages, salty snacks, foods from chain restaurants)
- Most consume *higher than recommended levels* of nutrients of concern (i.e., total calories, added sugars, sodium, total fat, sat fat)

Top 5 Sources of Energy for 2-18 Year Olds

- **Grain desserts** (cakes, cookies, donuts, pies) –138 kcal/d
- **Pizza** –136 kcal/day
- **Soda** –118 kcal/day
 - Sugar sweetened beverages overall – 173 kcal/day
 - Among 14-18 year olds- #1 source of energy – 226 kcal/day
- **Yeast breads** –114 kcal/day
- **Chicken and chicken mixed dishes** –113 kcal/day

Nearly 40% of total energy intake was from empty calories (433 kcal from solid fats & 365 kcal added sugars)

Percent of Adolescents age 12-19 years Consuming Specified Number of Snacks Per Day (1977-78 and 2005-06)



Source: Nationwide Food Consumption Survey 1977-78 and What We Eat in America, NHANES 2005-06, Day 1 dietary intake data, weighted.

Sources of Energy Intake in Children

School

School breakfast Program

National School Lunch Program

A La Carte

Vending Machines

After School on school grounds

35-40%

Home

Supermarkets/Grocery

Corner Stores

Other (eg Farmers' Markets)

53-58%

Away from Home

Restaurants

Vending, other community sites

Corner Stores

7-9%

School Environments Can Make a Difference

Challenges to a healthy school environment:

- Access to foods of minimal nutrition value
- Inconsistent guidelines for foods and beverages
- Attitudes of school community members to change
- Access and cost of healthy foods

Schools and Competitive Foods: What do we know?

Nutritionally poor foods are widely available in schools

Findings from SNDA-III (2004-2005) JADA 2009

- Nationally, 1 or more sources of competitive foods were available in 73% of elementary schools, 97% of middle schools and 100% of high schools.
- Overall, 40% of students consumed 1 or more competitive foods on a typical school day and consumption increased with grade level.
- Healthy foods and beverages are increasingly available, but the most common items sold outside school meals are candy, sugary drinks, salty snacks and desserts.

Bottom line: While schools have made improvements, more is needed.

What is the impact of competitive foods on child nutrition?

- SNDA-III found students who ate competitive foods/ beverages at schools on average consumed 277 Kcal/ day; two-thirds of these Kcal (177) were from low-nutrient, energy dense sources.
- The availability of snacks and drinks sold in schools are associated with higher student intakes of total calories, soft drinks, total fat and saturated fat intakes and lower intakes of fruits and vegetables and milk.
- The availability of junk foods in vending machines in or near the school cafeteria in middle schools was associated with higher than average body fatness.
(SNDA-III Fox et al, 2009)

Availability of Competitive Foods and Beverages in U.S. Elementary Schools 2007-08 (BTG)

- 62% of students could purchase competitive foods and/or beverages, up from 59% in 2006-07
- Less healthy competitive foods were commonly available
 - 44% could buy foods such as chips, candy, cookies or fries
 - 17% could buy sugar-sweetened beverages
 - 38% could buy high-fat milks
- Only 37% of students attended a school that restricted sugary foods during class parties
- Only 39% attended a school that restricted the use of food as a reward for good academic performance

Do school policies and practices make a difference?

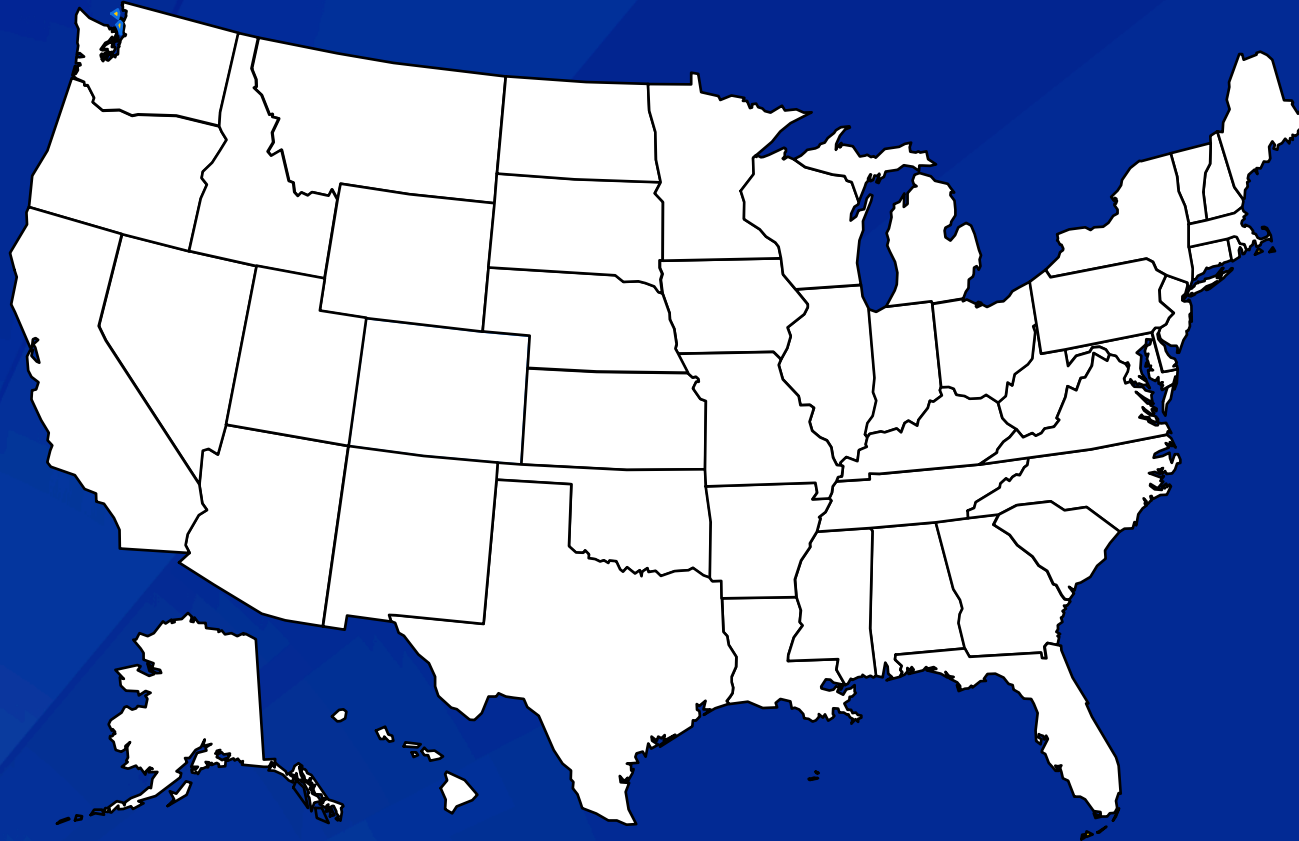
- SNDA-III found school food policies and practices that limited the availability of competitive beverages were associated with reduced consumption of calories from sweetened beverages at schools. Students did not “make up” by drinking more outside of school. (Briefel et al 2009)
- In 29 school districts in Washington, in districts that had stronger beverage policies, fewer middle school students drank sugar-sweetened beverages. (Johnson et al, JAH 2009)
- Children in schools with restricted snack availability consumed more FV during school. (Gonzalez et al, 2009)

What is the impact of competitive foods on school revenue?

Available data do not support the concern that improving the nutritional quality of competitive foods will hurt school revenue.

- A recent review examined 7 studies and the evidence suggests that the majority of schools have been able to improve the nutritional value of competitive foods without changing overall revenue. (Wharton et al JSH, 2008)
- In West Virginia, after the new vended beverage guidelines, revenues remained stable. Among 431 principals, 80% reported little or no change in revenues. (2009)
- Studies have shown that when competitive foods are limited, participation in the school meal program increases, effectively compensating for revenue losses.

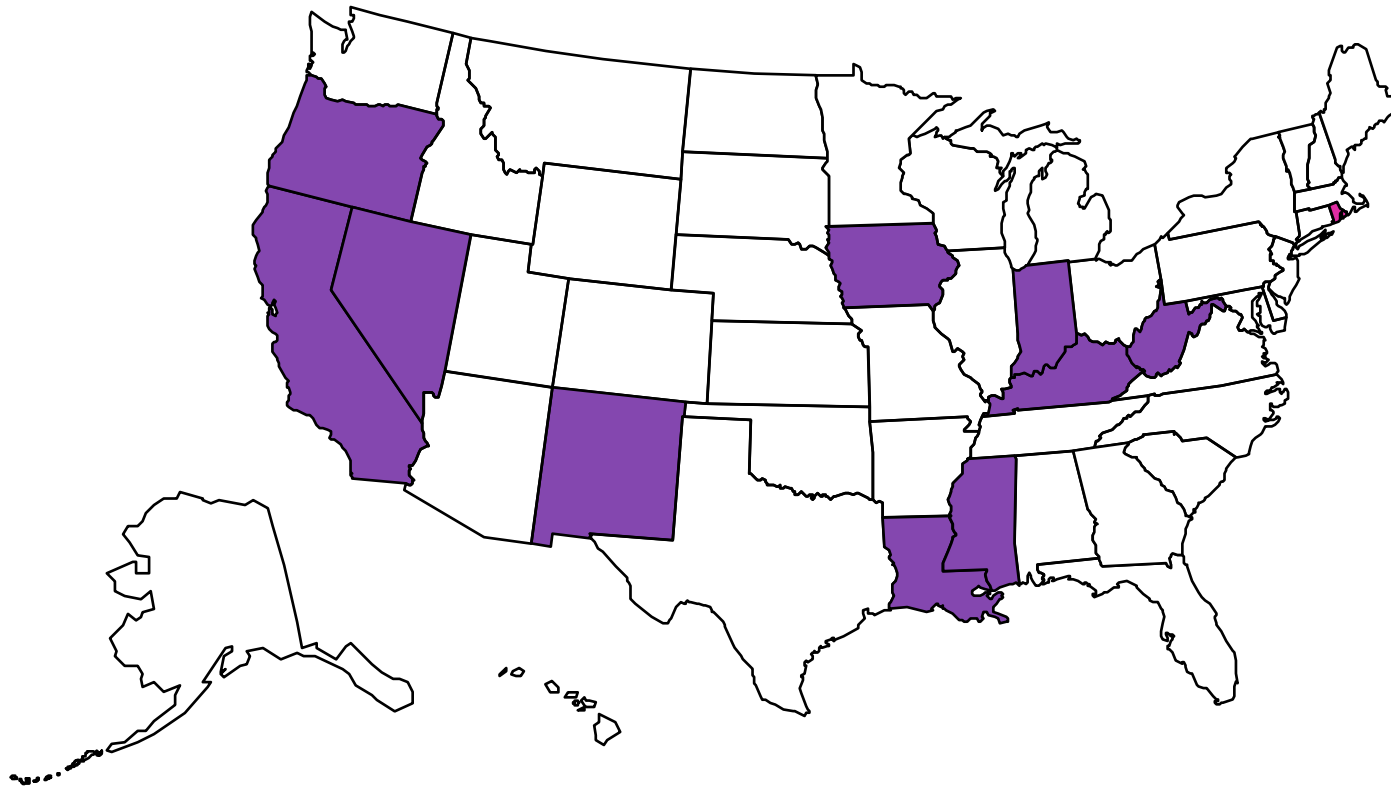
Existence of State Policies Establishing Nutrition Standards for Competitive Foods in Schools



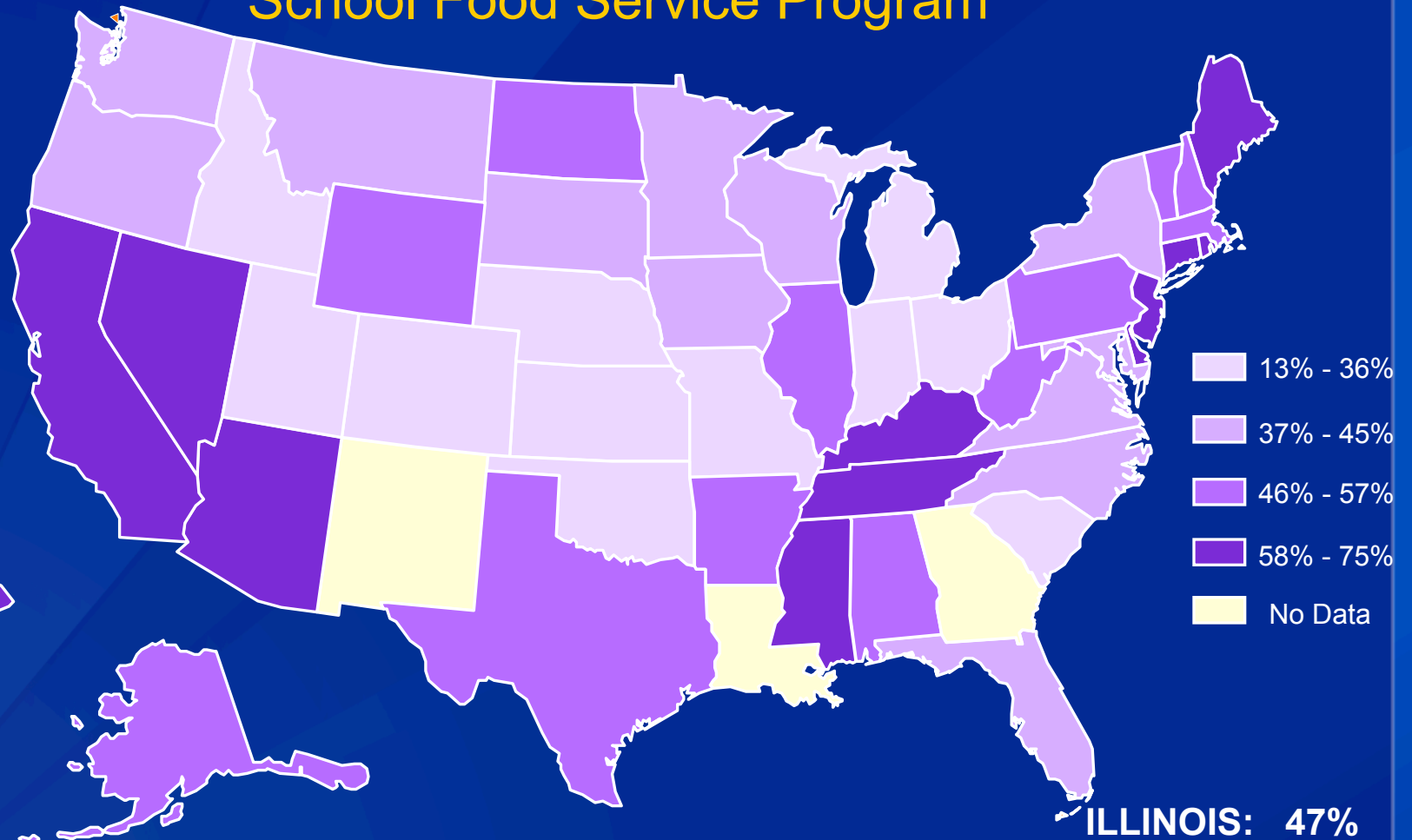
-  = Has Standards for Competitive Foods
-  = Developing Standards
-  = No State Standards

States Requiring Comprehensive Nutrition Standards for Competitive Foods in Secondary Schools

States requiring nutrition standards for competitive foods in la carte and vending which limit fat, sugar and calories/portion size at the MS and HS level



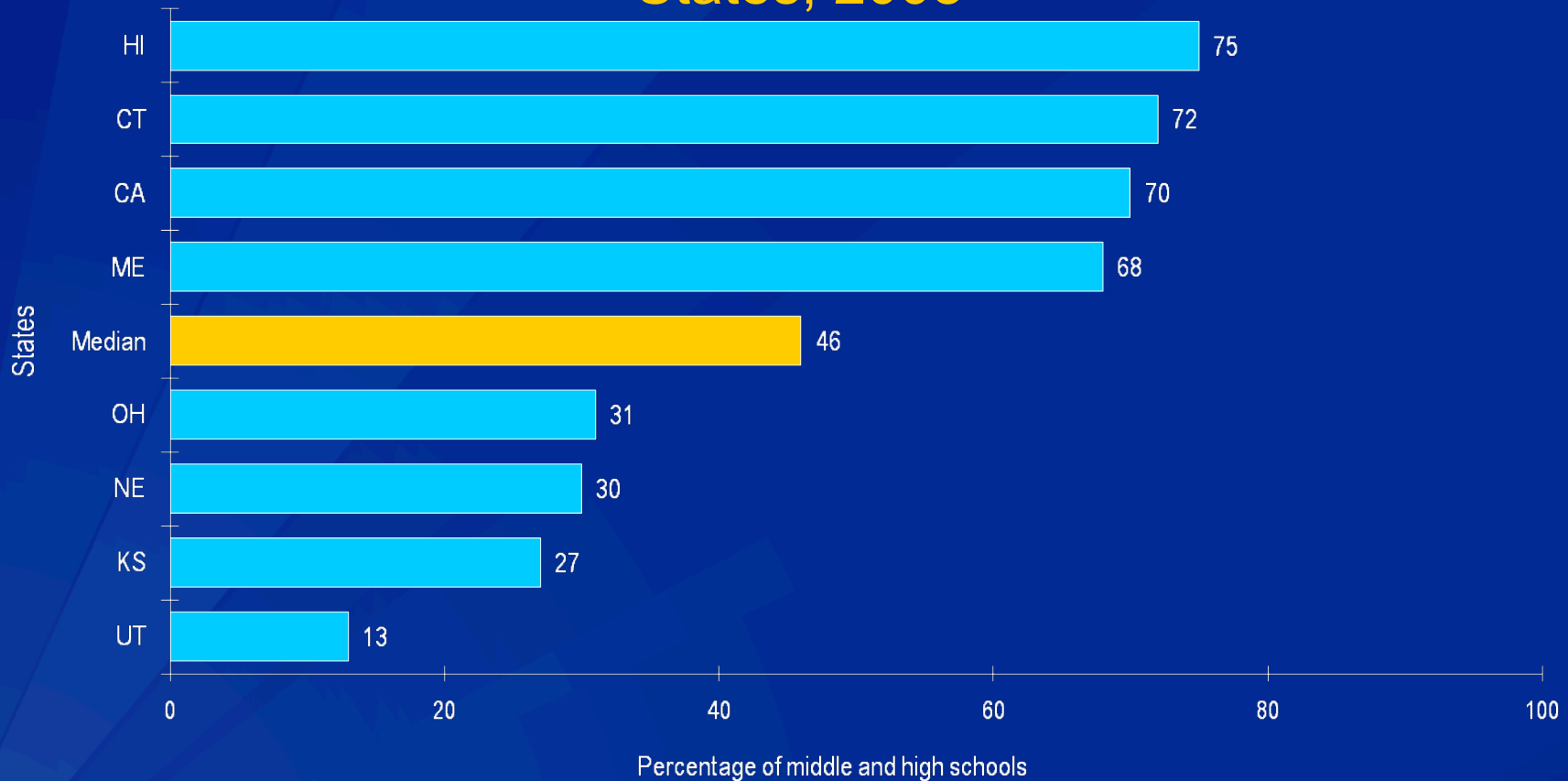
Percentage of Secondary Schools that Did Not Sell Less Nutritious Foods and Beverages* Anywhere Outside the School Food Service Program



*Baked goods not low in fat, salty snacks not low in fat, chocolate candy, other kinds of candy, and soda pop or fruit drinks that are not 100% juice

School Health Profiles, 2008

Percentage of Secondary Schools That Did Not Sell Less Nutritious Foods and Beverages* Outside the School Food Service Program – Selected States and Median Among 47 States, 2008



**Baked goods and salty snacks not low in fat, chocolate and other kinds of candy, soda pop or fruit drinks that are not 100% juice*
-CDC, School Health Profiles

Map 3. States Prohibiting All Unhealthy Beverages Throughout the School Day in Middle Schools and High Schools.

Shaded states are those with beverage standards that prohibit regular soda, diet soda and other sugar sweetened beverages including non-100% juice for secondary schools.



Competitive Foods: Our current situation

- Federally subsidized school meals are required by Congress and USDA to meet nutrition standards and comply with the *Dietary Guidelines for Americans*.
- Competitive foods are largely exempt from such requirements. **The USDA has not had the authority to regulate foods or beverages sold outside the cafeteria or outside mealtimes.**
- USDA Nutrition standards for competitive foods are minimal and outdated.

Competitive Foods

Gives USDA the authority to establish national nutrition standards for all foods sold on the school campus throughout the school day (“competitive foods”)

The Healthy, Hunger-Free Kids Act 2010

Policy Recommendations: What is Needed?

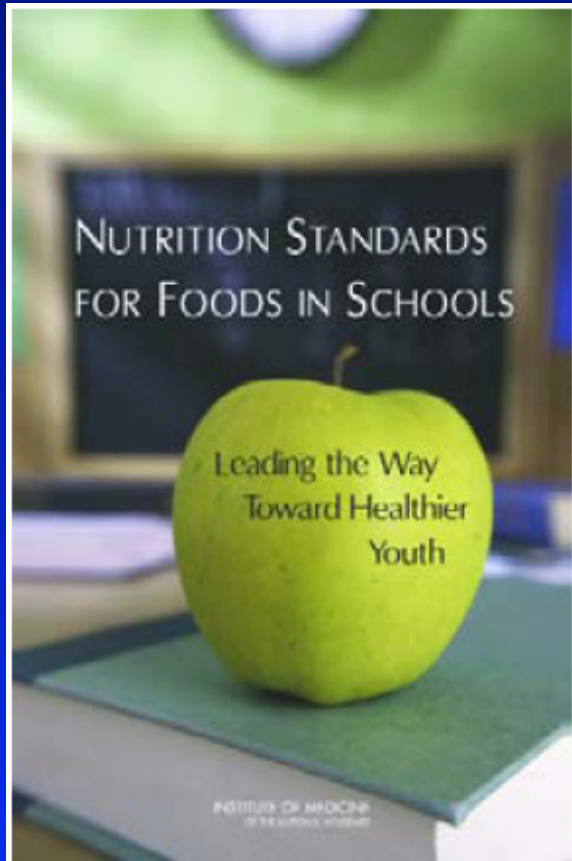
- Update the national nutrition standards for competitive foods and beverages to bring them in line with the Dietary Guidelines and apply them to the whole campus for the entire school day. The new standards should:
 - Restrict the sale of sugar-sweetened beverages throughout the day in all schools.
 - Limit the availability of low-nutrient, energy-dense foods sold a la carte and in vending machines and fundraisers.
 - Increase children's consumption of fruits, vegetables, whole grains and non-fat or low-fat dairy products.

Institute of Medicine Nutrition Standards

- In 2007, the IOM released guidelines for nutrition standards for competitive foods in schools.
 - Convened a committee of experts to review science and nutrition needs of children and youth to establish guidelines.
 - Focuses on beverages and foods sold outside the federal breakfast and lunch programs.
- Sets standards for:
 - Portion sizes, calories, all fats, sugar, and sodium
 - When and where foods should be offered.



Institute of Medicine's *Nutrition Standards for Foods in Schools (2007)*



Major conclusions:

1. Opportunities for competitive foods should be limited. The federal school nutrition programs should be the main source of nutrition at schools.
2. If competitive foods are available, they should consist of nutritious fruits, vegetables, whole grains, and nonfat or low-fat milk/dairy products, plain water, 100% juice (4-8 oz).

Healthy People 2020

Americans with a healthful diet:

- Consume a variety of nutrient-dense foods within and across the food groups, especially whole grains, fruits, vegetables, low-fat or fat-free milk or milk products, and lean meats and other protein sources.
- Limit the intake of saturated and trans fats, cholesterol, added sugars, sodium (salt), and alcohol.
- Limit caloric intake to meet caloric needs.



www.healthypeople.gov

Healthy People 2020 Objectives: *Nutrition and Weight Status*

Healthier Food Access

1. Increase the number of States with nutrition standards for foods and beverages provided to preschool-aged children in child care
2. Increase the proportion of school that offer nutritious foods and beverages outside of school meals
 - Increase the proportion of school that do not sell or offer calorically sweetened beverages to students
 - Increase the proportion of school districts that require schools to make fruits or vegetables available whenever other food is offered or sold

Flavored Milk Consumption: Too Much? Too Sweet?



Flavored Milk and Added Sugar

- The AHA recommends children consume at most 3 teaspoons (12 grams) for 4-8 yr olds and 6-9 teaspoons (24-36 grams) for adolescents of added sugars each day.
- Children 4-8 yrs old consume on average 21 teaspoons (336 kcal) and adolescents consume on average 29 teaspoons (486 kcal) of added sugars each day.
 - 7 and 14X greater than recommended amounts.
- Flavored milk adds on average about 60 extra calories of added sugar per 8 ounces
 - Skim white milk = 90 kcal
 - Skim chocolate milk = 150 kcal

Flavored Milk in Schools

- Flavored milks are provided as a reimbursable beverage in the National School Lunch Program
 - 99% of school lunches (SNDA-III)
 - 79% of school breakfasts
- Over 50% of children choose flavored milk for lunch and 22% for breakfast
 - 57% elementary school children choose flavored milk for lunch and 23% for breakfast



Please Take
Only 1 or 2
Chocolate
Milk!
Thank You!

1% chocolate milk, 8 oz.—170 calories, 26 g sugar

PUSH UP

HERE

THANK YOU FOR SELECTING

HERE

PUSH UP

SCHRÖDER

TO OPEN

Nutrition Facts

Serving Size 1 cup (240mL)

Servings Per Container 1

Amount Per Serving

Calories 130 Calories from Fat 0

% Daily Value*

Total Fat 0g 0%

Saturated Fat 0g 0%

Trans Fat 0g

Cholesterol 5mg 2%

Sodium 230mg 10%

Total Carbohydrate 23g 8%

Dietary Fiber 0g 0%

Sugars 22g

Protein 8g

Vitamin A 10% • Vitamin C 0%

Calcium 30% • Iron 0% • Vitamin D 25%

*Percent Daily Values are based on a 2,000 calorie diet.

INGREDIENTS:

FAT FREE MILK, HIGH FRUCTOSE CORN SYRUP, COCOA (PROCESSED WITH ALKALI), CORN STARCH, SALT, CARRAGEENAN, VANILLIN, VITAMIN A PALMITATE AND VITAMIN D3 PASTEURIZED HOMOGENIZED



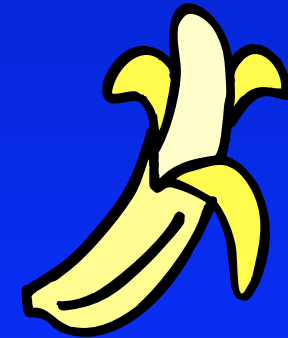
DAIRY STAR

Can healthy food choices be made more attractive through lower prices, availability and peer promotion?



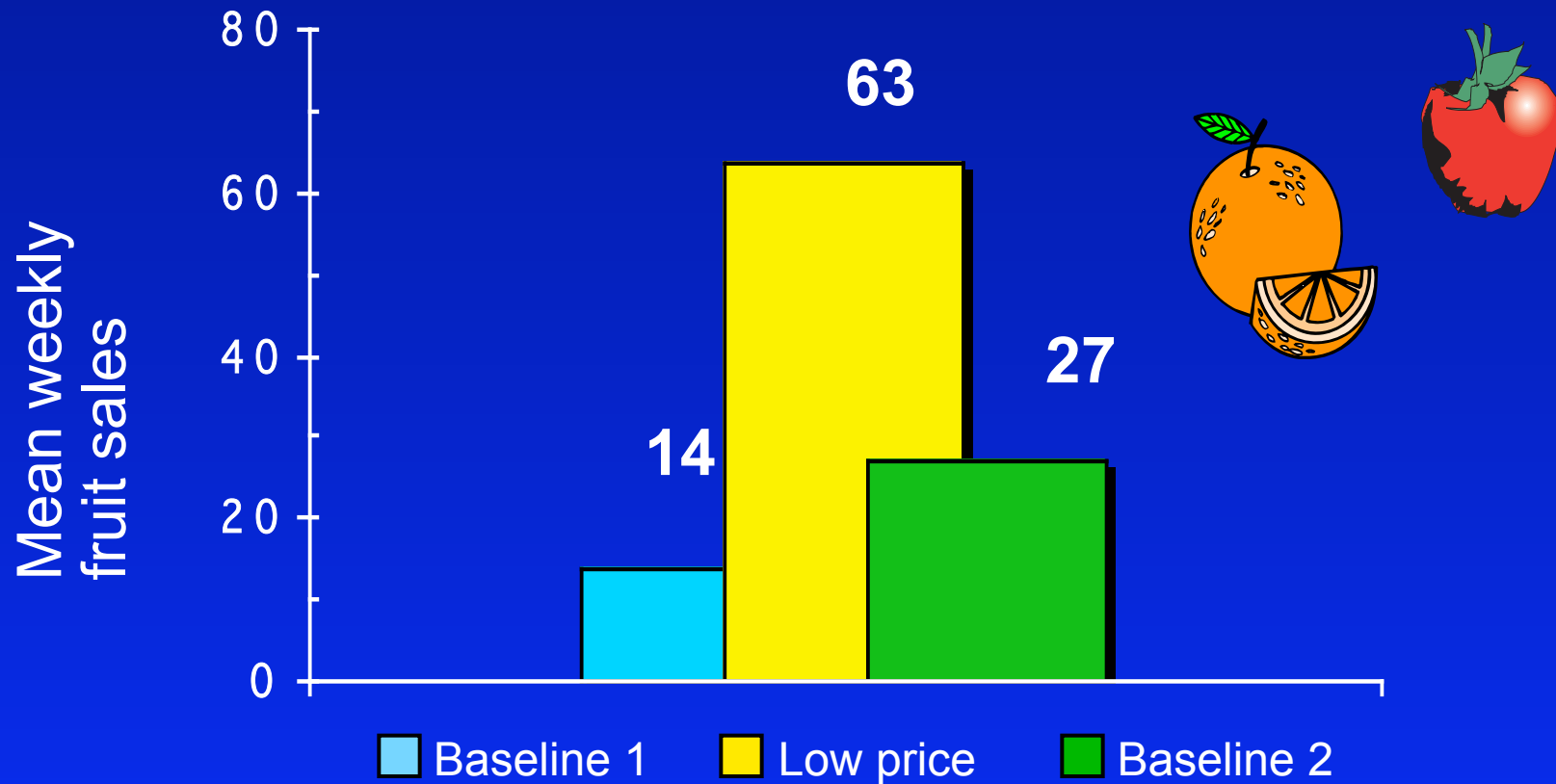
Pricing Strategy to Promote Fruit and Vegetable Purchase in High School Cafeterias

- Two high schools
- A La Carte fruit and vegetable target (fresh fruit, baby carrots)
- Design:
 - 3 week usual price
 - 3 week 50% price reduction
 - 3 week usual price
- Outcome: Student purchases



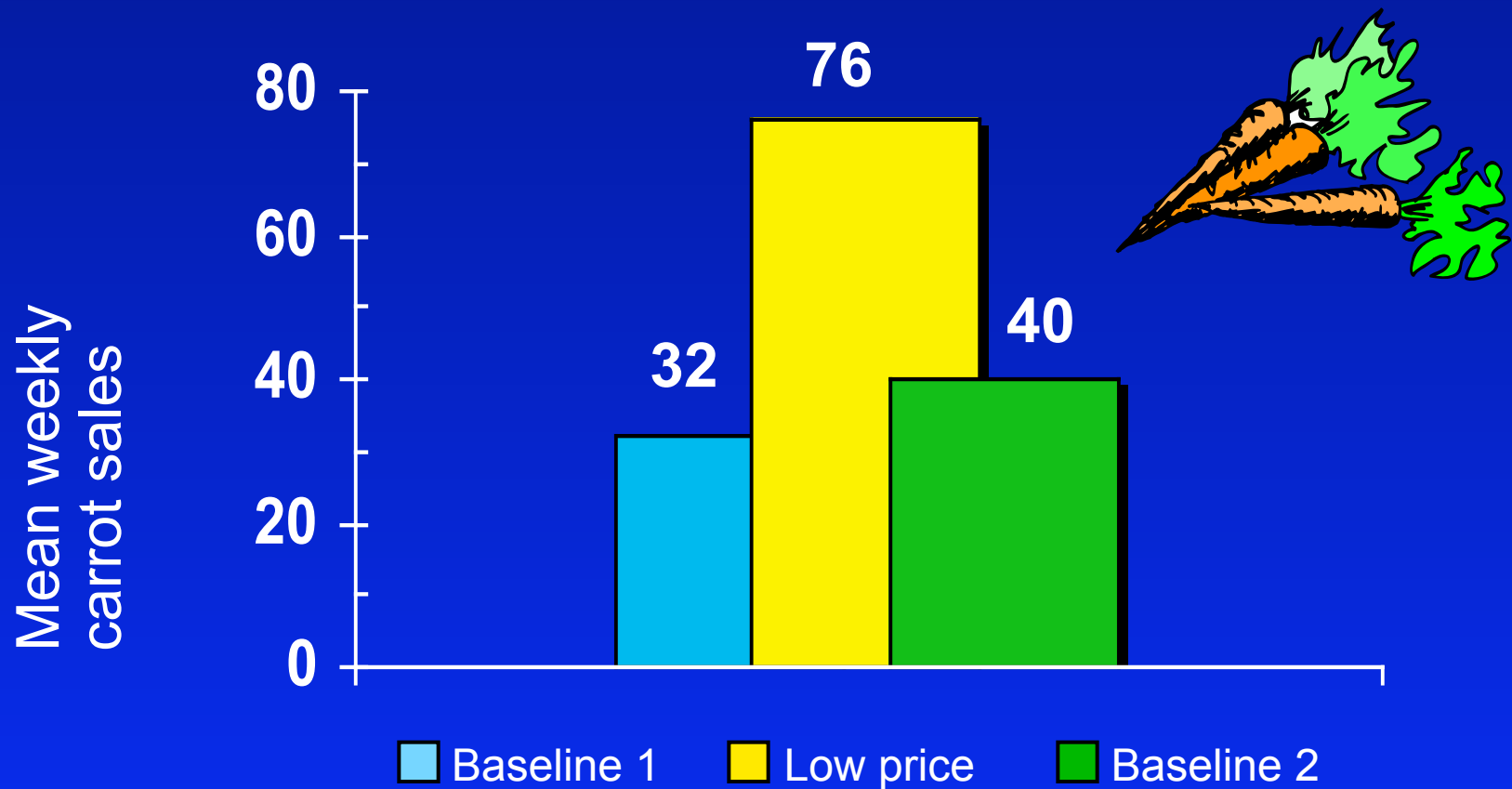
Source: French, Story, Jeffery et al. JADA

Fruit Sales as a Function of Price



Source: French, Story, Jeffery et al. JADA

Carrot Sales as a Function of Price



Source: French, Story, Jeffery et al. JADA

Study Purpose

- Increase sales of lower fat a la carte foods in high school cafeterias



Strategies

- Increase availability of lower fat items in a la carte areas
- Student involvement in school-wide promotion campaigns

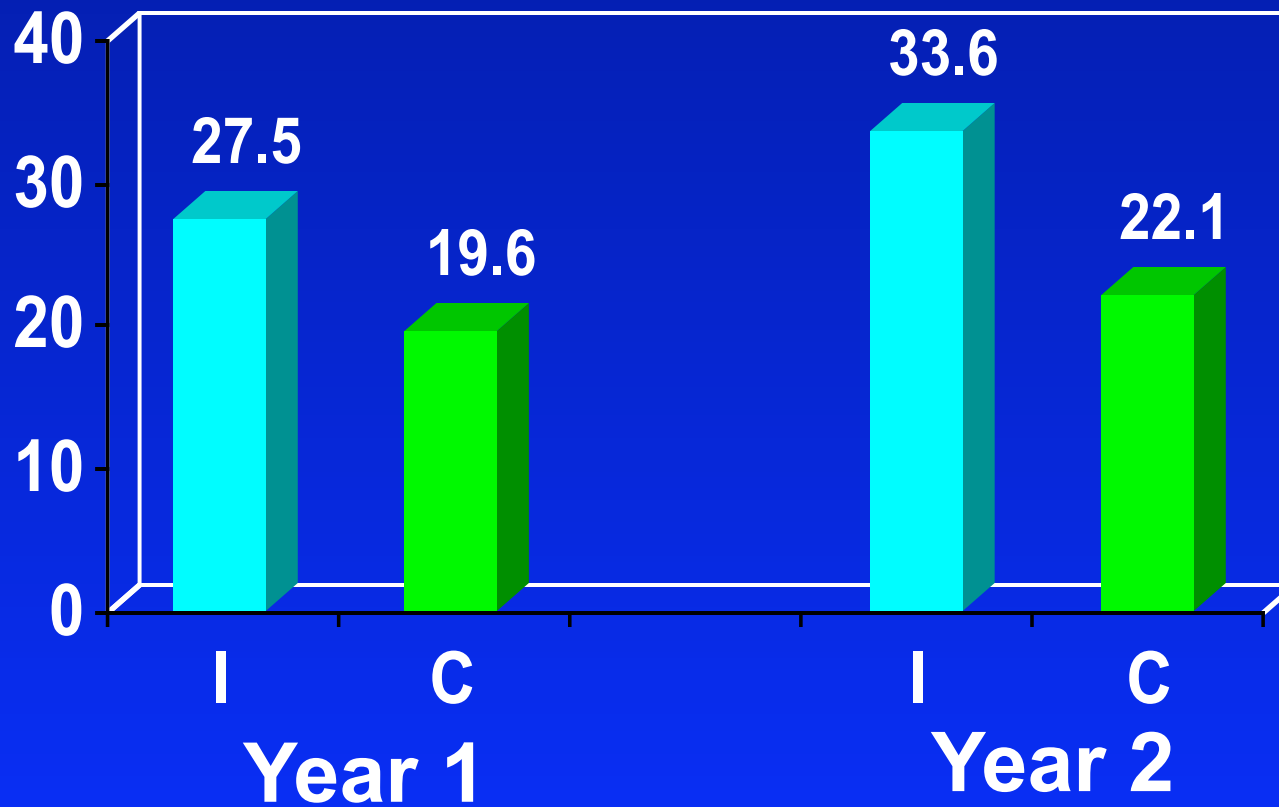


\$1.00 OFF
Limited time only!!



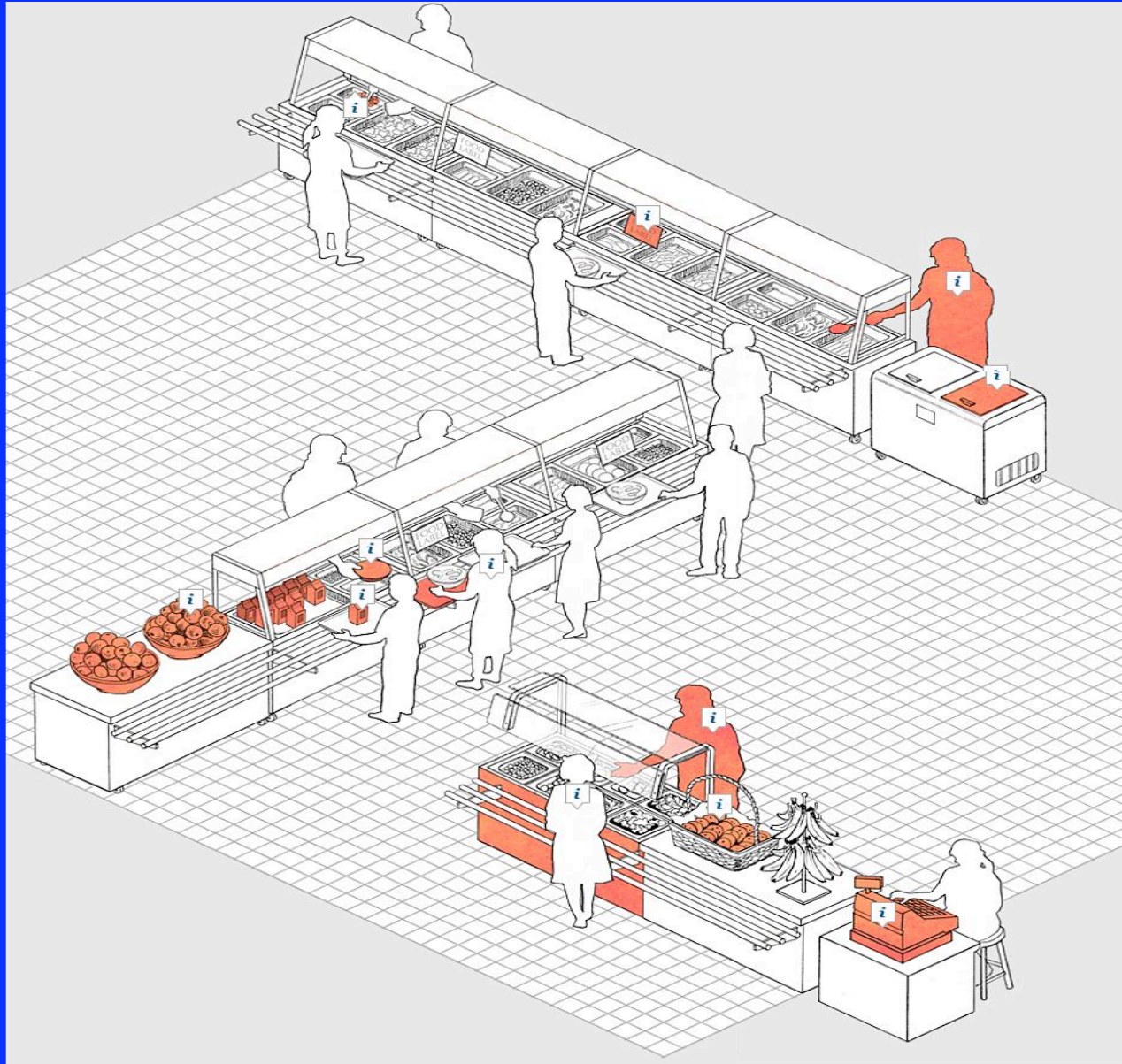
Lower Fat Food Sales

Level (%)



Creating A Healthy Environment For Change

- Availability
- Price
- Promotion
- Social norms



The School Lunch Line Redesign

By BRIAN WANSINK, DAVID R. JUST and JOE MCKENDRY
New York Times Opinion Pages, October 21, 2010

Move the Broccoli

Placing nutritious foods like broccoli at the beginning of the lunch line, rather than in the middle, increased the amount students purchased by 10 percent to 15 percent.



Re-Name the Food

Giving healthy food choices more descriptive names—for example, “creamy corn” rather than “corn”—increased their sales by 27 percent.

Offer a Choice

Students given a choice between carrots and celery were much more likely to eat their vegetables than students forced to take only carrots.

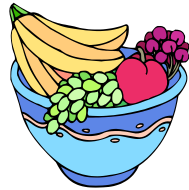
Hide the Ice Cream

Keeping ice cream in a freezer with a closed opaque top significantly reduced ice cream sales.



Use Fruit Bowls

Putting apples and oranges in a fruit bowl, rather than a stainless steel pan, more than doubled fruit sales.



Shrink the Bowl

Decreasing the size of bowls from 18 to 14 ounces reduced the size of the average cereal serving at breakfast by 24 percent.

Move the Chocolate Milk

Moving the chocolate milk behind the plain milk led students to buy more plain milk. with a closed opaque top significantly reduced ice cream sales.



Encourage the Use of Trays

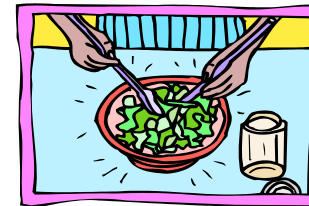
Requiring or encouraging the used of cafeteria trays increased vegetable consumption: students without trays eat 21 percent less salad but no less ice cream.

Move the Salad Bar

Pulling the salad bar away from the wall and putting it in front of the checkout register nearly tripled sales of salads.

Offer a Salad

When cafeteria workers asked each child, “Do you want a salad?” salad sales increased by a third.



Pay Cash for Dessert

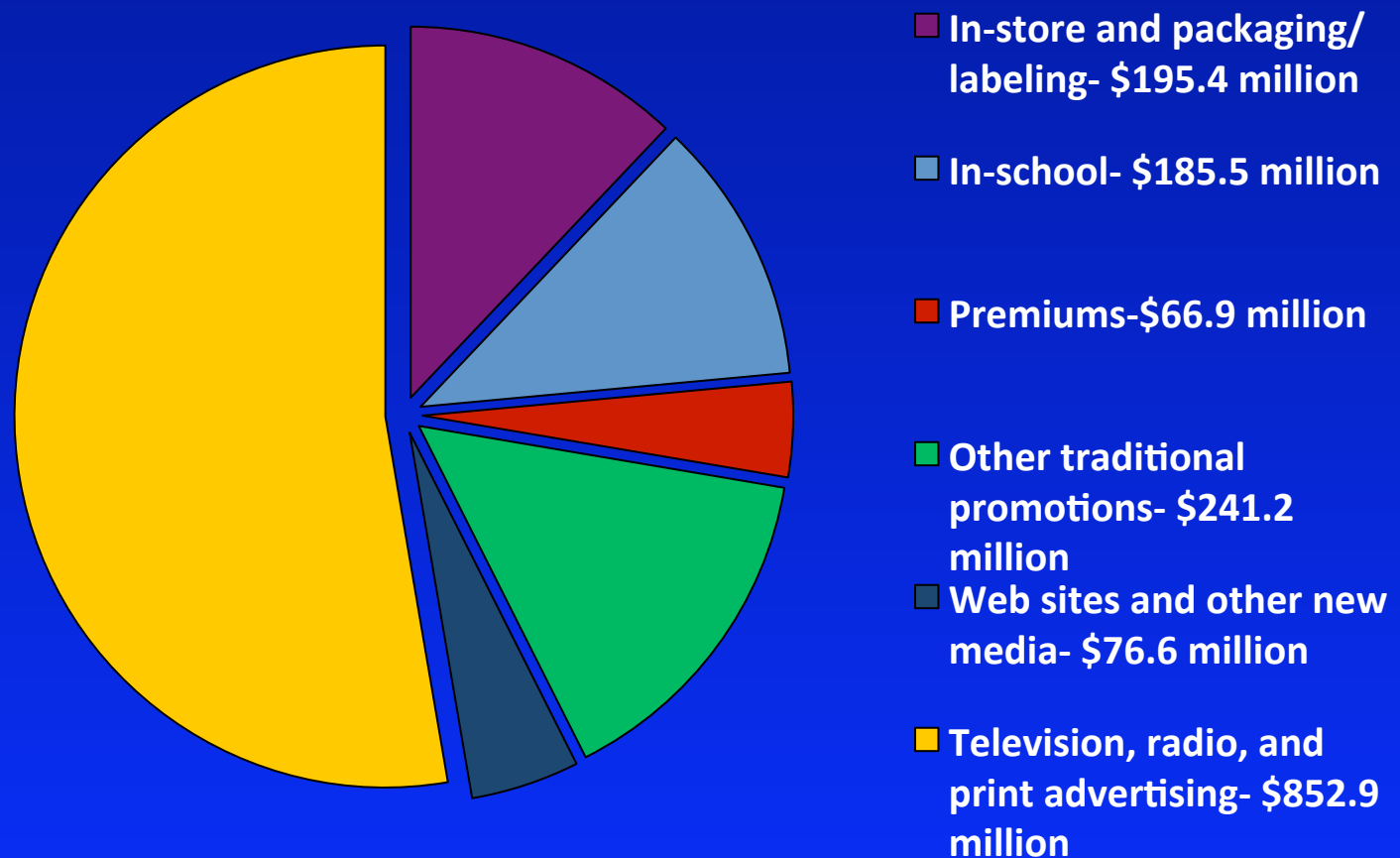
A “cash for cookies” policy—that is, forbidding the use of lunch tickets for desserts—led students to buy 71 percent more fruit and 55 percent fewer desserts.



Make and Express Line

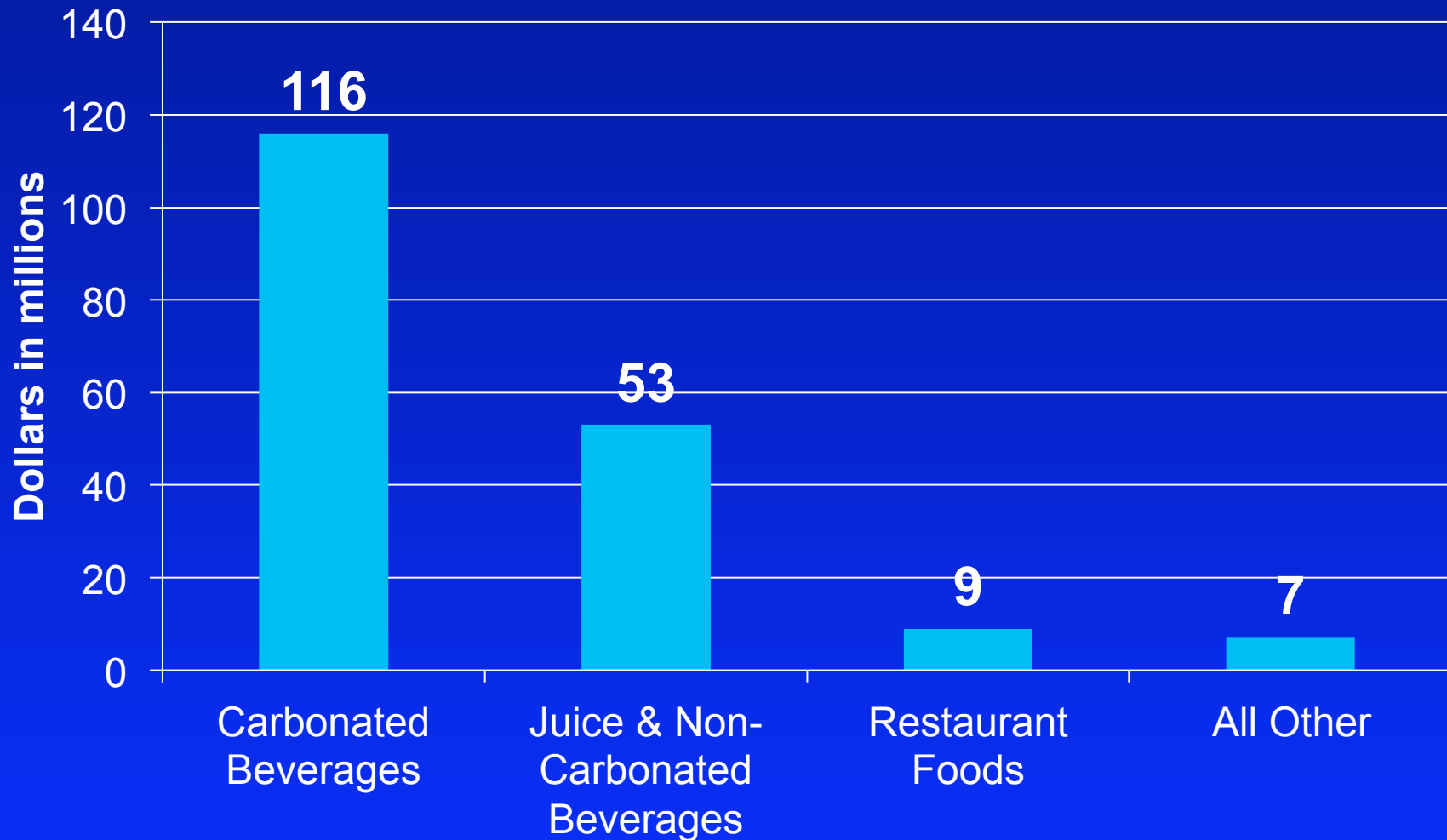
Creating a speedy “healthy express” checkout line for students who were not buying desserts and chips, doubled the sales of healthy sandwiches.

Reported 2006 Expenditures on Marketing to Children and Adolescents by Promotional Activity Category (\$ billions dollars)



Source: Kovacic W, Harbour P, Leibowitz J, Rosch J. *Marketing Food to Children & Adolescents: A Review of Industry Expenditures, Activities, and Self-Regulation*. July 2008.

In-School Marketing to Youth: Top 3

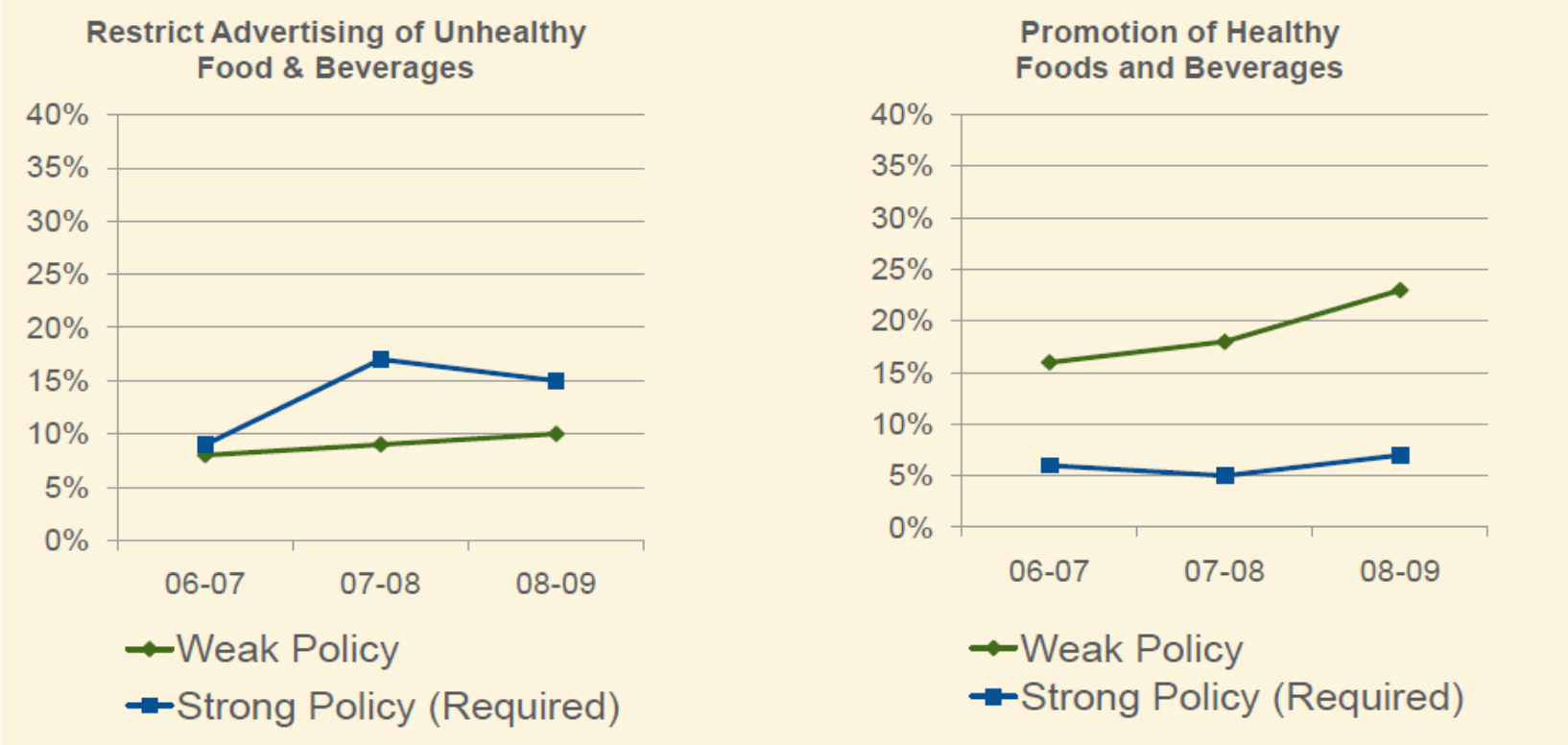


Source: *Marketing Food to Children and Adolescents: A Review of Industry Expenditures, Activities and Self-Regulation*. Federal Trade Commission, July 2008.



Policies Related to Advertising and Marketing of Foods & Beverages in Schools

% of Students in Districts with Policy by Year



bridging the gap

www.bridgingthegapresearch.org

Source: Chriqui JF, Schneider L, Chaloupka FJ, Gourdet C, Bruursema A, Ide K and Pugach O. School District Wellness Policies: Evaluating Progress and Potential for Improving Children’s Health Three Years after the Federal Mandate. School Years 2006–07, 2007–08 and 2008–09. Vol. 2. Chicago, IL: Bridging the Gap Program, Health Policy Center, Institute for Health Research and Policy, University of Illinois at Chicago, 2010, www.bridgingthegapresearch.org.

Corner Store Youth Purchasing to/from School (833 4th-6th graders)

- 53% shop once a day
- 42% shop 2 times/day
- 356 kcal per purchase from snacks/beverages
- Students spent \$1.07 on 2 items per purchase from corner stores

Borradaile KE, Sherman S, Vander Veur S. et al. Snacking In Children: The Role of Urban Corner Stores. *Pediatrics*. 2009; 124 (5).



Child Nutrition Reauthorization: Improving the School Environment



*The Healthy, Hunger-Free
Kids Act 2010*

Child Nutrition Reauthorization 2010

1. School Lunch and Breakfast Standards

- USDA must revise the school meal pattern to be consistent with the U.S. Dietary Guidelines

2. Rewards School Meal Improvements

- Adds a six cents per meal performance-based increase to the school lunch reimbursement rate
- Creates a certification system

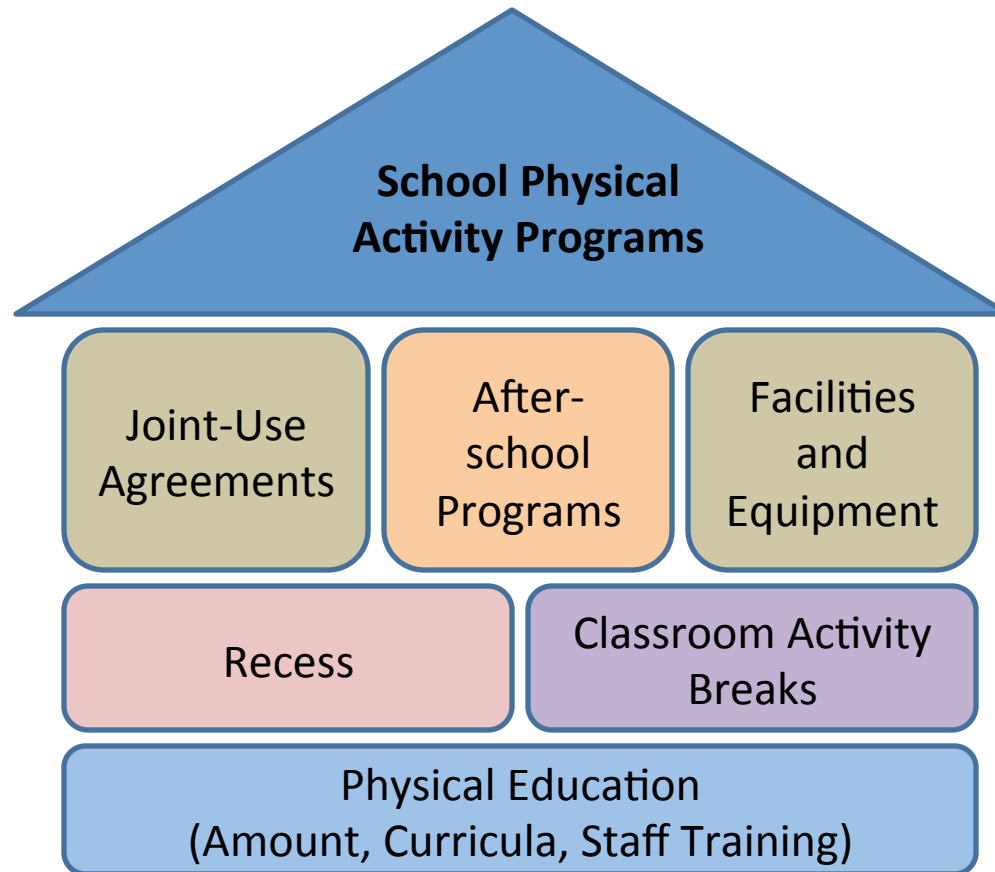
3. School Meal Beverages

- Only lower-fat milk options can be served
- Water must be readily available at meal times

Child Nutrition Reauthorization 2010

- **SCHOOL WELLNESS POLICIES** Updates local school wellness policies & requires opportunities for public input, transparency, & an implementation plan
- **FARM-TO-SCHOOL** Provides \$40 million over five years in mandatory funding for farm-to-school programs

School Policy Areas to Support Physical Activity



Healthier Students Are Better Learners: A Missing Link in School Reforms to Close the Achievement Gap

Charles E. Bash

A Research Initiative of the Campaign for Educational Equity

[www.equitycampaign.org/i/a/
document/](http://www.equitycampaign.org/i/a/document/)

[12557_EquityMattersVol6_Web03082
010.pdf](#)

Critical Educationally Relevant Health Factors

- 1) vision
- 2) asthma
- 3) teen pregnancy
- 4) aggression & violence
- 5) ADHD
- 6) physical activity
- 7) breakfast

CDC DASH Report

Academic Performance and School Based Physical Activity and Physical Education

□ Physical Education

- ▣ Devoting time to physical education may have a positive relationship to academic achievement or may not negatively affect it.
- ▣ Favorable associations with cognitive skills and attitudes.

□ Physical activity breaks and activity offered throughout the day may be associated with:

- ▣ Decreases in classroom misbehavior
- ▣ Increases in cognitive function, including concentration and memory
- ▣ Positive effects on academic achievement



Report can be found at: www.cdc.gov/healthyyouth

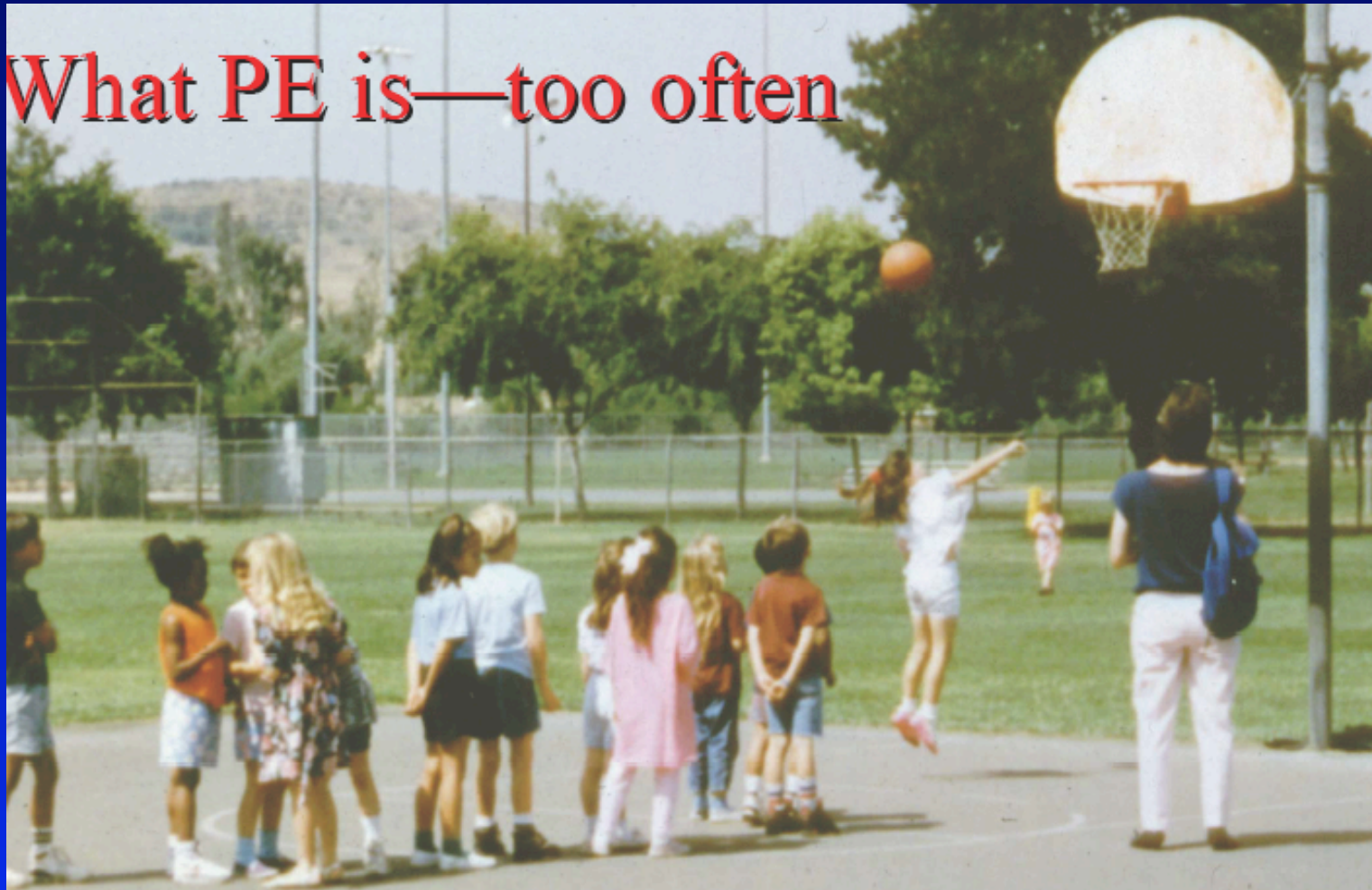
CDC DASH Report: Academic Performance and School Based Physical Activity and Physical Education

- Recess
 - ▣ Positive association with cognitive skills like time on task, attitudes and academic behavior.
 - ▣ One study found that overall classroom behavior was better for students with at least 15 min. of recess every day.
- Extracurricular physical activity
 - ▣ Positive association with academic performance including higher grades and grade points averages as well as high school drop out rates.



Report can be found at: www.cdc.gov/healthyouth

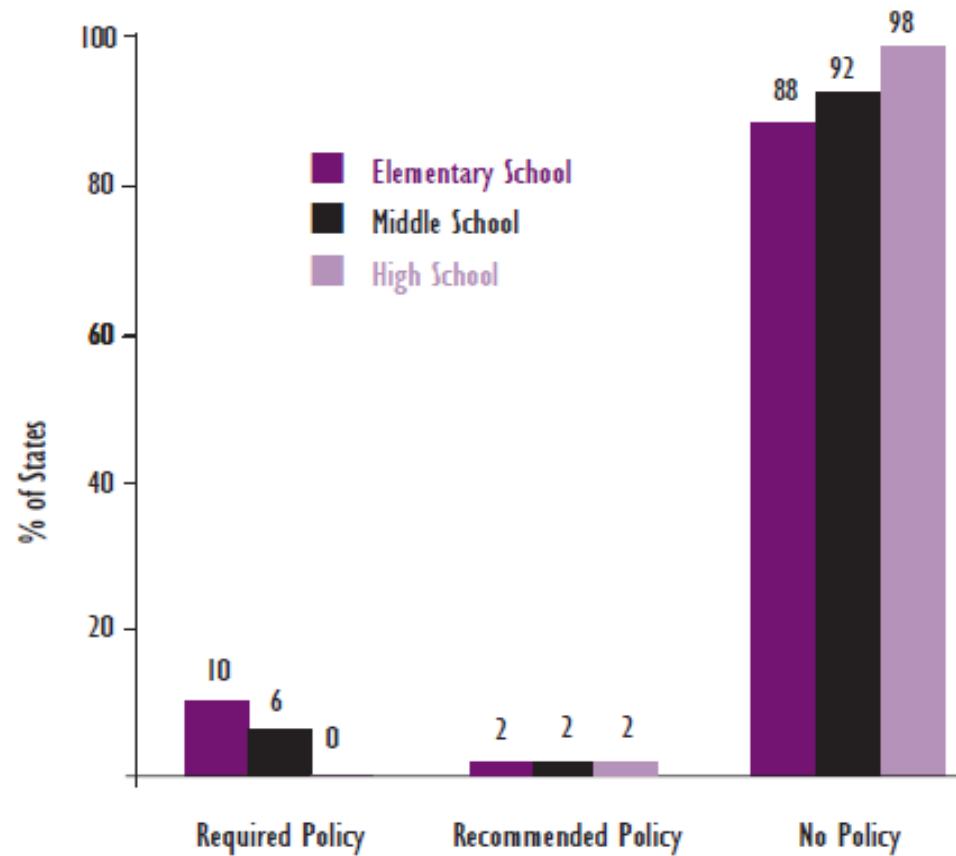
What PE is—too often



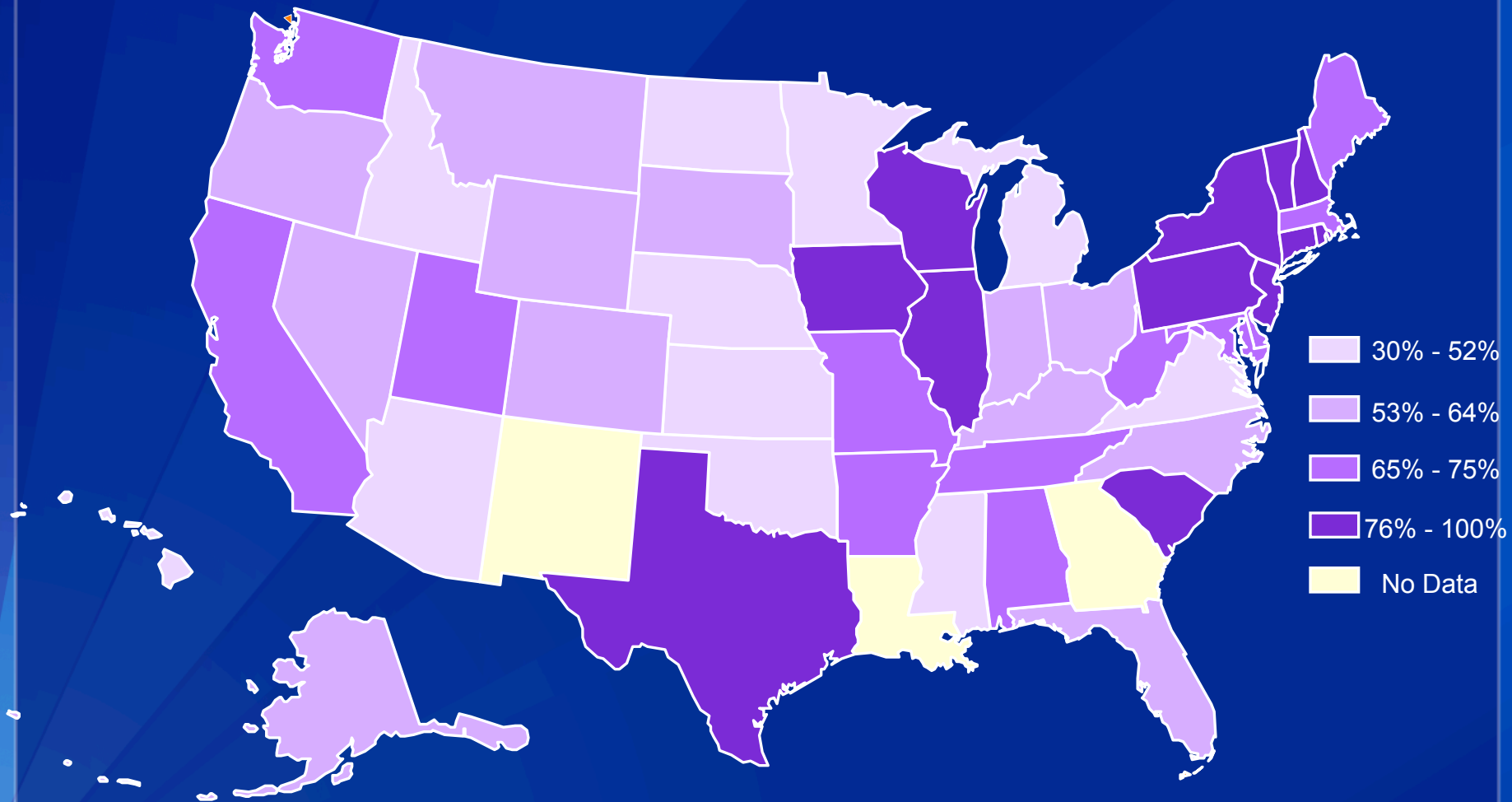


What PE should be

Figure 3. State Policies Addressing Moderate-to-Vigorous Physical Activity as part of Physical Education Class Time by Grade Level of Applicability, School Year 2009-10

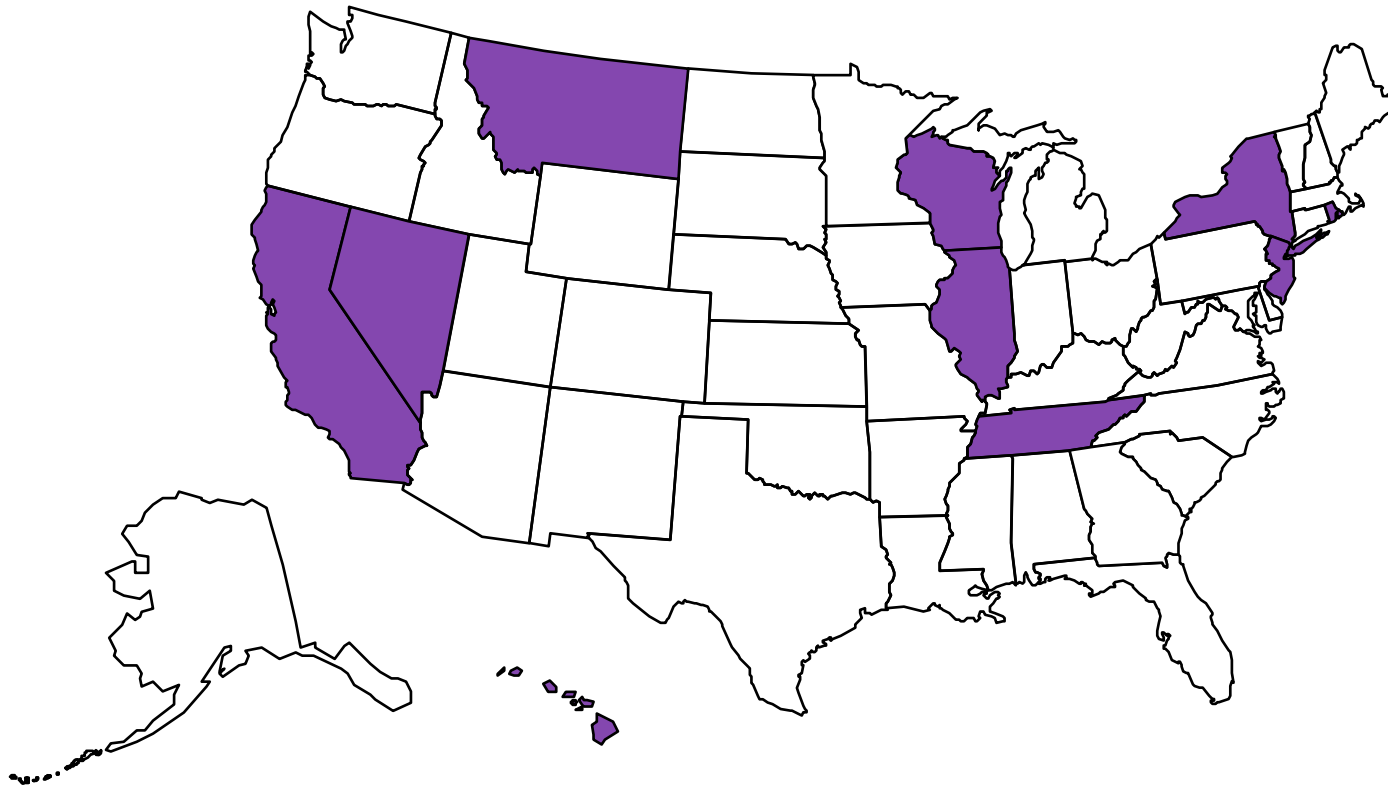


Percentage of Secondary Schools that Taught a Required Physical Education Course in All Grades in the School



States Requiring Time/Frequency for PE and Time for Physical Activity Outside of PE in Secondary Schools

States that have at the MS and HS level either (1) time or frequency requirement for PE, (2) Physical activity time outside of PE requirement or (3) activity break requirement:



Recess

Playground Modifications and Equipment

- Modifications of the play yard and/or provision of play equipment may be necessary to optimize children's activity at recess
 - In a 2005 study, multi-color playground markings significantly increased the amount of activity children received during recess¹
 - Installing new equipment and marking playgrounds increased MVPA by nearly 14%²



¹⁻²Stratton G, Mullan E. The effect of multicolor playground markings on children's physical activity level during recess. Preventive Medicine. 2005; 41: 828-33.

Key Findings for Physical Activity

- Physical activity (PA) provisions in SWPs were much weaker than nutrition-related provisions
- Physical education provisions were not aligned with evidence-based guidelines

Source: Chriqui JF, Schneider L, Chaloupka FJ, et al. School District Wellness Policies: Evaluating Progress and Potential for Improving Children's Health Three Years after the Federal Mandate. School Years 2006–07, 2007–08 and 2008–09: Bridging the Gap Program, University of Illinois at Chicago, 2010, www.bridgingthegapresearch.org.

Things to consider:

- Policies addressing all students, especially middle school and high school, physical education and physical activity should be stronger and meet national recommendations.
- Quality PE:
 - PE exemptions
 - Requiring moderate and vigorous activity in PE
 - Using qualified PE instructors and following NASPE standards
 - Setting minimum time and frequency requirements for PE
- Physical activity outside of PE
 - Time for physical activity outside of PE
 - Physical activity breaks
 - Sedentary time to less than 2 hrs.

“Let us put our
minds together and
see what life we
can make for our
children.”

Sitting Bull
Lakota Sioux, 1877

