School Food Service and Nutrition

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Objectives

- To become familiar with the structure, function, and management of school nutrition programs;
- To discuss the role of schools in obesity prevention; and
- To discuss the potential impact of recent initiatives to improve the quality of school nutrition programs, specifically wellness policies.
School Food Service and Nutrition

- Nutrition Services
- Nutrition Education
- Nutrition Environment

Wellness Policies
▪ Hunger and malnutrition used to be the primary nutritional issue for children.

▪ School nutrition services were developed to address this issue.

▪ Since that time, food availability, nutrition quality of foods/fast foods has changed the nutrition focus in schools and in the country to that of the issue of obesity.

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- Obesity is a major driving factor in the current issues facing schools in the area of school nutrition programs.
- Schools cannot work alone to address this issue, yet they are being held accountable by communities.
Trends in Child and Adolescent Overweight*

- >95th percentile for BMI by age and sex based on 2000 CDC BMI-for-age growth charts
- **Data are from 1963-65 for children 6-11 years of age and from 1966-70 for adolescents 12-17 years of age

Source: National Center for Health Statistics

http://www.cdc.gov/nchs/products/pubs/pubd/hestats/overweight/overwght_child_03.htm#Table%201.
• Body Mass Index = \( \frac{\text{Wt}}{\text{Ht}^2} \)
• Age and Gender specific curves

≥95th Percentile
Obese

85th-95th Percentile
Overweight

< 5th Percentile
Underweight

School Age children
Nutrition Context: Issues for Schools

What nutrition issues are faced by schools today?
Nutrition Context: Issues for Schools

- Historical context to address hunger and malnutrition
- Obesity epidemic
- Eating disorders
- Special dietary needs of students/staff
  - Diabetes
  - Food allergies
- Nutrition environment
- Wellness policy mandate (implementation and evaluation)
- Local nutrition policies/federal mandates for food programs
- Parent concerns...or not!
- Business and administrative challenges
  - Food appeal
  - Food advertising
  - Funding issues (vending, á la carte, fund raising)
Developmental Approach to Feeding
Critical Elements Needed for Healthy Eating Habits

- Variety
- Portion sizes
- New foods
- Environment

School Nutrition Programs
Nutrition and Academic Achievement

Results are varied:

- SBP improves attendance, reduces tardiness, improves test scores
- Improved math scores
- Reduced behavioral problems
- Iron deficient students with anemia, improve test scores when anemia corrected In the severely undernourished population, SBP improve academic performance and cognitive functioning
- Obesity is associated with poorer academic performance/”impaired school functioning” - unable to show cause and effect
Nutrition Services

Definition:
“Access to a variety of nutritious and appealing meals that accommodate the health and nutrition needs of all students.”

HP2010

Obj 19-15–Increase the proportion of children and adolescents aged 6 to 19 years whose intake of meals and snacks at school contributes to good overall dietary quality
Nutrition Services Programs/Activities

- National regulated programs:
  - National School Lunch Program (NSLP)
  - School Breakfast Program (SBP)
  - Summer Feeding Programs (SFP)
  - Special Milk Program

- Local School/system driven programs/activities:
  - À la carte foods
  - Vending machines
  - Fundraisers
  - Parties and special events
National School Lunch Program

- **What is NSLP?**
  - A USDA program that provides financial assistance to local schools in order to provide meals to school students (lunch and snacks in after-school programs)

- **How does it work?**
  - Cash subsidies and commodities donations (domestic agricultural surplus)

- **Who participates?**
  - 101,650 schools (99% of public and 88% of all schools)
  - 60% of students eat school lunch


National School Lunch Program

Other issues:

- Services to students with special needs
- Income requirements for free and reduced meals, but offered to all students
- USDA support for training and technical assistance
Select Federal Child Nutrition Programs, 2007–08 School Year

**School Breakfast Program**
- Average daily student participation: 10,545,556
- Free and reduced-price: 8,457,861
- Paid: 2,087,695
- Increase in free and reduced-price participation in past 10 years: 65.0%
- Number of schools participating: 85,559
- Federal reimbursement: $2,364,161,711

**School Lunch Program**
- Average daily student participation: 30,954,657
- Free and reduced-price: 18,412,978
- Paid: 12,541,679
- Number of schools participating: 99,876
- Federal reimbursement: $8,258,242,796

**Summer Food Service Program (July 2007)**
- Average daily July participation: 2,852,877
- Number of sites: 30,895
- Federal funding: $249,559,234
National School Lunch Program

- Nutritional requirements
  - Meet USDA Dietary Guidelines for Americans
    - Limit to <30% of calories from **fat** with <10% **Saturated Fat**
    - Reduce **sodium** and **cholesterol** levels
    - Increase the level of dietary **fiber**
  - 1/3 RDA of Protein, Vit A, Vit C, Iron, Calcium, Calories
  - No standards for cholesterol, sodium, carb/fiber, or sugar

- Governed by regulation with local control and flexibility in how to meet requirements
NSLP Finances

- $8.1 Billion (Federal dollars)
- Programs are often required to be self-supporting
  - Generally break-even
  - Reimbursable lunches generate a surplus that offsets losses from reimbursable breakfasts and subsidizes competitive foods.
  - Revenues from reimbursable meals accounted for an average of 85% of total revenues.
- Food and labor account for most program costs
- Student payments and USDA subsidies increase most program revenue

American Recovery and Reinvestment Act of 2009

- Focus is on grants to purchase equipment needed in food service programs.
Nutritional Evaluation of the NSLP

- NSLP schools offered more than one-third of the RDA for all key nutrients, except for calories in secondary schools (30%)
- 82% - 91% of schools offered meals that allowed students to choose low-fat lunches (based on fat and saturated fat offerings)
- Most programs come close to meeting nutrition standards for fat and saturated fat (34% and 12%)

Nutrition Outcomes for Participants

- **Higher intakes of food energy**, vitamin B6, vitamin B12, thiamin, riboflavin, calcium, phosphorous, magnesium, and zinc, but also higher mean intakes of total fat, saturated fat and sodium, both at lunch and through the day.

- **More likely than nonparticipants to consume vegetables**, milk and milk products, and meat and meat substitutes, both at lunch and through the day.

- **Consume less soda and fruit drinks** and fruit flavored drinks at lunch than nonparticipants.

- **Lower intakes of added sugars** at lunch and through the day than nonparticipants.

School Breakfast Program

- Meal program that serves breakfast in schools with assistance from the Federal Government
- Operates on the same principles as the NSLP
  - ¼ daily caloric intake and 1989 RDA’s
- Govern by regulation
- $1.35 Billion
- 78% of schools with NSLP offer SBP
  - 37% of children eat the offered breakfast
Dietary effects of the SBP*

- Overall better diet
- Lower percentage of calories from fat
- Improved vitamin and mineral status
- Diet of other family members is improved

Breakfast in general, reduces risk of obesity so SBP may have this effect also.

* Largest effect is for higher income families

Nutrition Outcomes for SBP Participants

- Higher intakes of food energy, calcium, phosphorous, and vitamin C at breakfast and through the day.

- More likely than nonparticipants to consume fruit and milk both at breakfast and through the day.

School Meals Evaluation: Trends

- Overall there is progress
  - Average meals offered were lower in total fat and saturated fat
  - More schools offered the opportunity to select meals that met the total fat and saturated fat targets
  - There is still a need for improvement in the nutritional quality of meals offered

- Students selections are not often those most consistent with the Dietary Guidelines for Americans
  - There is still a lot of room for improvement in the nutritional quality of meals selected
“Any food sold in competition with the [NSLP and SBP] to children in food service areas during the [lunch and breakfast] periods.”

- School cafeteria (à la carte)
- Vending machines and school stores
- Parties and classroom snacks (including teacher’s rewards)
- Concession stands (sporting events)
- After school programs (may or may not be CACFP)
- Fundraising activities
- Staff and parent meetings (food from home)
- Lunches brought from home
What Competitive Foods Are Available?

- Juice (44%); cookies (41%); pizza (33%); ice cream (36%); crackers, granola bars, and pretzels (33%); Fresh fruit (32%); Snack chips (32%); juice drinks (30%); bagels (27%); baked desserts (27%); French fries (27%)
  - SNDA-II (2001)

- Candy (35-95%); sugared beverages (80-100%); F/V (20-57%); low fat salty snacks (56-93%); low fat backed goods (41-80%); 100 % fruit juice (56-96%) and bottled water (84-100 %)
  - School Health Profiles- 2004

Kann, L et al. JSH. 2005;75(10):370-374
Effect of Competitive Foods

- May cause diet related health risks
- Stigmatize those participating in the NSLP esp. if FARM
- Conveys a mixed message to students
- Displaces fruits and vegetable intake
- Contributes to excess fat intake
- Increased soft drink consumption and reduced milk intake
- Diverts Federal dollars and costs revenue to programs
- Low income families loose money

Examples of Policies on Competitive Foods

- Arkansas
  - Bans in-school access to vending machines in elementary schools

- Florida
  - Foods of minimal nutritional value may only be sold in secondary schools with school board approval and only one hour after the last lunch

- Chicago, LA, NYC, Phila, Seattle
  - Ban soft drinks in school vending machines
Beverage Industry: Voluntary Standards

- Only water and 100% juice to elementary schools
- Low calorie and nutritious beverage choices in middle school
- Increase variety of drinks in high schools and have only 50% or less be soft drinks
School Food Service and Nutrition...

The daily battle between nutrition and taste!
Team Nutrition

- Provides training and TA to child nutrition professionals to help them serve meals that are appealing and meet nutritional guidelines.

- Provide integrated nutrition education to students and their parents.

- Provide support for healthy eating by working with school administrators and teachers as well as the community.
Nutrition Education
7CFR227

“[Establish]...nutrition information and education program through a system of grants to State agencies to provide for (a) the nutritional training of educational and foodservice personnel, (b) the foodservice management training of school foodservice personnel, and (c) the conduct of nutrition education activities in schools and child care institutions. To the maximum extent possible, the Program shall fully utilize the child nutrition programs as a learning experience.”

http://a257.g.akamaitech.net/7/257/2422/14mar20010800/edocket.access.gpo.gov/cfr_2003/pdf/7CFR227.1.pdf
Goals of Nutrition Education

- Influence student eating behavior
- Build nutrition Knowledge and skills
- Understanding of nutrition concepts that is then used for problem solving
- Positive attitudes about nutrition
- Nutritious food choices
- Understand principles of nutrition and evaluate nutrition controversies and select healthy meals in varied settings
- Motivation to continue the learning process

Weiss, EH. JSH, 1998; 57(1)
Components of a Healthy School Nutrition Environment

- A Commitment to Nutrition and Physical Activity
- Quality School Meals
- Other Healthy Food Options
- Pleasant Eating Experiences
- Nutrition Education
- Marketing
Nutrition Environment and Wellness Policies

- **Section 204 of the Child Nutrition and WIC Reauthorization Act of 2004**

- **Requirements**
  - Goals for Nutrition Education
  - Goals for Physical Activity
  - Nutrition guidelines for foods at schools
  - Federal reimbursable meals must meet USDA requirements
  - Goals for other wellness promoting activities
  - Evaluation plans for implementation
  - Involvement from a broad representation
    - Parents, students, food service staff, school administrators, the public
Examples

- **Texas**
  - All public schools must limit all food offerings with >28 g fat per serving to twice per week

- **South Dakota**
  - Set limits/standards for sodium, cholesterol, and fiber for lunches and breakfast

- **California**
  - Strongest nutrition standards in the nation
    - Limit calories, sugar, and soda bans during school hours
- Establish nutrition standards for competitive foods
- Influence food and beverage contracts
- Make more healthful foods and beverages available
- Adopt marketing techniques
- Limit student access to competitive foods
- Use fundraising activities and rewards
Examples of Specific Initiatives

- Sufficient time for lunch (20 mins seat time)
- School gardens
- Using “Changing the Scene” tool kit
- Milk vending machines
- BMI assessments for students
- Policy assessments

Effect of Policy Change: California

- LA Unified School District
  - Soda Ban (January 1, 2004)
  - Standards of what and when beverages and snacks can be sold in school
  - Junk food ban

- Results
  - Impacted the food (55%) and beverages (53%) consumed at school
  - Some students complained about the healthy foods (did not like)
  - Half of those who felt an impact, ate less junk food/drink at home
  - Some binged on junk food/drink at home (35% /30%)

Vecchiarelli, S; et al JSH, 2006; 76(10): 525-531
Planet Health
Boston, MA

- School-based interdisciplinary classroom curriculum for 6-9th grades
- Builds nutrition education concepts into math, science, English, social studies, and PE
- Goals (behavioral):
  - Reduce TV and computer time to <2 hrs/d
  - Increase moderate to vigorous physical activity
  - Reduce intake of high fat foods esp. unhealthy fat
  - Increase intake of fruits and vegetables

Planet Health

- **BMI**
  - Girls: intervention group
    - Elevated BMI ↓ from 23.6% to 20.3% in Girls:
  - Girls: Control Group
    - Elevated BMI ↑ from 21.5% to 23.7% in
  - Boys: ↓ in BMI in both groups (NSS Δ between groups)

- **TV**
  - ↓ for both boys and girls

- **Dietary patterns**
  - Improved for girls (↑ F/V, less of an ↑ in calories)

- **Projected economic savings**
  - For every $1 spent ➔ $1.20 savings in future health care costs

Coordinated Approach to Child Health (CATCH)

- Pilot grades 3-5
- Focus is on supportive environmental influences
- Target behaviors are physical activity and healthy eating both in and out of school
- Components:
  - Classroom curriculum
  - Skills based learning
  - Fun
  - Cafeteria offerings model classroom teaching
Coordinated Approach to Child Health (CATCH)

- Results:
  - ↑ time spent in Mod to V PA during PE by 10%
  - ↓ fat consumption by 7%

- 3 year follow-up:
  - Dietary improvements continued
  - PA gains were maintained

- Results replicated in Hispanic populations
- Cost effective
- Program expanded
Action for Healthy Kids: 12 Commitments to Change

- Provide age-appropriate and culturally sensitive instruction in health education and physical education that help students develop the knowledge, attitudes, skills and behaviors to adopt, maintain and enjoy healthy eating habits and a physically active lifestyle.

- Provide students in pre-kindergarten through grade 12 with behavior-focused nutrition education integrated into the curriculum that is interactive and teaches the skills they need to adopt healthy eating habits.

- Ensure that meals offered through all school feeding programs meet federal nutrition standards.

- Adopt policies ensuring that all foods and beverages available on school campuses and at school events contribute toward eating patterns that are consistent with the Dietary Guidelines for Americans.

- Provide food options that are low in fat, calories and added sugars, such as fruits, vegetables, whole grains and low-fat or nonfat dairy foods.

- Ensure that healthy snacks and foods are provided in vending machines, school stores and other venues within the school’s control.
Action for Healthy Kids:  
**12 Commitments to Change**

- Prohibit student access to vending machines, school stores and other venues that contain foods of minimal nutritional value and compete with healthy school meals in elementary schools and restrict access in middle, junior and high schools.

- Provide an adequate amount of time for students to eat school meals; schedule lunch periods at reasonable hours around midday.

- Provide all children, from pre-kindergarten through grade 12, with quality daily physical education that helps develop the knowledge, attitudes, skills, behaviors and confidence needed to be physically active for life.

- Provide daily recess periods for elementary school students, featuring time for unstructured but supervised active play.

- Provide adequate co-curricular physical activity programs, including fully inclusive intramural programs and physical activity clubs.

- Encourage the use of school facilities for physical activity programs offered by the school and/or community-based organizations outside of school hours.
“What’s Working”

- Action for Healthy Kids
  - 10 Essential criteria
    - Based on theory and standards, measurable objectives, developmental and cultural appropriate, able to be adopted to different environment....
  - 5 Critical criteria
    - Cost effective, fits into school mandates, can be integrated into curriculum, sustainable, supported by audience
“What’s Working”
Selected Examples

- Breakfast in the classroom
- Body weight and Body image lessons for Adolescents
- CookShop program
Discussion

- What role should schools play in addressing obesity?
- How can schools work to bring school lessons learned home?
- What role should/can policy play in promoting healthy eating in schools?
- How can current economic pressures be addressed by schools in working toward healthy eating?