

Policy on Vending Machines in Schools

Originating Council

Council on Clinical Affairs

Review Council

Council on Clinical Affairs

Adopted

2002

Revised

2005, 2009

Purpose

The American Academy of Pediatric Dentistry (AAPD) recognizes that targeted marketing and easy access to sweetened foods and beverages (acidulated carbonated and noncarbonated) by children and adolescents may increase the amount and frequency of their consumption, which, in turn, may contribute to an increase in caries risk and a negative influence on overall nutrition and health.

Methods

The revision of this policy included a new systematic literature search of the MEDLINE/Pubmed database using the following parameters: Terms: schools, vending machines, AND dental; Fields: all fields; Limits: within the last 10 years, humans, English, and clinical trials. The update also included a review of the American Academy of Pediatrics' policy on soft drinks in schools¹ and the US Department of Agriculture's (USDA) policy on school meals.² Fifty articles matched these criteria. Papers for review were chosen from these articles and from references within selected articles. When data did not appear sufficient or were inconclusive, recommendations were based upon expert and/or consensus opinion by experienced researchers and clinicians.

Background

There has been a reduction in untreated caries among certain demographic groups of children and adolescents in recent years.³ Frequent consumption of refined carbohydrates, however, can be a significant factor in the child and adolescent diet that contributes to the initiation and progression of caries.⁴ Vending machines provide ready access to highly-refined carbohydrates, especially soft drinks.* The acids present in carbonated beverages can have a greater deleterious effect (ie, erosion) on enamel than the acids generated by oral flora from the sugars present in sweetened drinks.⁵ Analysis of NHANES III data indicated that 13% of children aged 2 through 10 had diets high in consumption of carbonated soft-drinks, and these children had a significantly higher dental

caries experience in the primary dentition than did children with other fluid consumption patterns.⁶ Many soft drinks also contain significant amounts of caffeine which, if consumed regularly, may lead to increased, even habitual, usage.⁷

There is growing concern that vending machine items with limited nutritional value are "competitive foods", resulting in snack options that are considered to be of poor nutritional quality.⁸ A significant increase in caries scores has been reported for children who attended schools that had vending machines.⁹ An effort is underway to increase the healthy choices available in vending machines by replacing sugar-sweetened drinks with bottled water, candy bars with nutrition bars, and potato chips with dried fruits and nuts.¹⁰

Increased consumption of refined carbohydrates by children and adolescents may have a negative impact on their overall nutrition by displacing foods with higher nutrient density.¹¹ Nutrient density refers to the amount of nutrients in a food compared to the calories. Foods low in calories and high in nutrients are nutrient rich (dense). Foods high in calories and low in nutrients are of poor nutritional quality. As teenage girls have increased their consumption of soft drinks, their consumption of milk has decreased by 40%, which may contribute to a decrease in bone density, subsequent increase in fractures, and future risk of osteoporosis.^{12,13} Increased ingestion of sugar-sweetened drinks also has been linked to the increased incidence of childhood obesity.¹⁴

Many beverage and snack food products are targeted specifically and aggressively at the child and adolescent market. Vending machines containing these products are readily accessible to children and adolescents in schools. In exchange for money to the individual school or districts, "pouring rights contracts" give beverage companies exclusive rights to sell their products at school events and place vending machines on school property, along with other measures that increase student exposure to the beverages.¹⁵ Presently, several states have legislation and others are considering legislation to limit pouring rights contracts to healthier options.^{16,17}

* For the purposes of this statement, the term soft-drinks refers to such beverages as sodas, fruit juices, and sports drinks.

Policy statement

The AAPD:

1. encourages collaboration with other dental and medical organizations, governmental agencies, education officials, parent and consumer groups, and corporations to increase public awareness of the negative effects of frequent and/or inappropriate intake of sweetened drinks (carbonated and noncarbonated) and low nutrient dense snack foods on infant, child, and adolescent oral health, nutrition, and general health;
2. opposes any arrangements that may decrease access to healthy nutritional choices for children and adolescents;
3. encourages school officials and parent groups to consider the importance of maintaining healthy choices in vending machines in schools and encourages the promotion of food and beverages of high nutritional value; bottled water and other more healthy choices should be available instead of soft drinks;
4. promotes educating and informing the public about the importance of good oral hygiene and nutritional habits as they pertain to consumption of items available in vending machines.

References

1. American Academy of Pediatrics. Policy statement: Soft drinks in schools. *Pediatrics* 2004;113(1Pt+1):152-4.
2. US Dept of Agriculture. Food and Nutrition Service. Available at: "<http://www.fns.usda.gov/fncs>". Accessed December 7, 2008.
3. Brown LJ, Wall TP, Lazar V. Trends in total caries experience: Permanent and primary teeth. *J Am Dent Assoc* 2000;131(2):223-31.
4. Ismail IA, Burt BA, Eklund SA. The cariogenicity of soft drinks in the United States. *J Am Dent Assoc* 1984;109(2):241-5.
5. Joint Report of the American Dental Association Council on Access, Prevention, and Interprofessional Relations and Council on Scientific Affairs to the House of Delegates. Response to Resolution 73H-2000. Chicago, Ill: ADA; October 2001.
6. Sohn W, Burt BA, Sowers MR. Carbonated soft drinks and dental caries in the primary dentition. *J Dent Research* 2006;85(3):262-6.
7. Majewski R. Dental caries in adolescents associated with caffeinated carbonated beverages. *Pediatr Dent* 2001;23(3):198-203.
8. US Government Accountability office. Report to Congressional Requests: School Meal Programs Competitive Foods are Widely Available and Generate Substantial Revenues for Schools. August 2005. Available at: "<http://www.gao.gov/new.items/d05563.pdf>". Accessed December 7, 2008.
9. Maliderou M, Reeves S, Nobel C. The effect of social demographic factors, snack consumption, and vending machine use on oral health of children living in London. *British Dental J* 2006;201(7):441-4.
10. US Dept of Agriculture. Food and Nutrition Service, Office of Analysis, Nutrition and Evaluation. National School Lunch Program Competitive Food Policies by State. Available at: "<http://schoolmeals.nal.usda.gov/Recipes/menuplan/menuplan.html>". Accessed December 7, 2008.
11. Freeman R, Sheiham A. Understanding decision-making processes for sugar consumption in adolescence. *Community Dent Oral Epidemiol* 1997;25(3):228-32.
12. Wyshak G. Teenaged girls, carbonated beverage consumption, and bone fractures. *Arch Pediatr Adolesc Med* 2000;154(6):610-3.
13. Ludwig DS, Peterson KE, Gortmaker SL. Relation between consumption of sugar-sweetened drinks and childhood obesity: A prospective, observational analysis. *Lancet* 2001;357(9255):505-8.
14. Fox K. Soft drinks under scrutiny. *ADA News* November 20; 2000:22.
15. Maihofer M. "Pouring wrongs": MDA discourages pop deals. *J Mich Dent Assoc* 2000;82(2):10.
16. Berthold M. Michigan opposes school-soda deals. *ADA News* November 20, 2000:8.
17. National Council of State Legislatures. Available at: "<http://www.ncsl.org/programs/health/vending.htm>". Accessed December 7, 2008.