

**This draft does not constitute an official AAPD health oral policy or clinical guideline until approval by the General Assembly. Circulation is limited to AAPD members.**

1 Policy on ~~Vending Machines~~ Snacks and Beverages Sold in Schools

2

3 Originating Council

4 Council on Clinical Affairs

5 Review Council

6 Council on Clinical Affairs

7 Adopted

8 2002

9 Revised

10 2005, 2009, 2017

11 Reaffirmed

12 2012

13

14 Purpose

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

20

21 Methods

22 This document is an update of the previous policy adopted in 2002 and last revised in 2009. It is  
23 based upon a review of current dental and medical literature, including a ~~systematic~~ literature  
24 search of the PubMed® database using the following parameters: Terms: school, vending  
25 machines, AND ~~dental~~ caries; Fields: all; Limits: within the last 10 years, humans, English,  
26 clinical trials, and ages birth through 18. The update also included a review of the American  
27 Academy of Pediatrics' policy on soft drinks in schools<sup>1</sup>, the American Academy of Pediatrics'  
28 policy on snacks, sweetened beverages added sugars and schools<sup>2</sup> and the U.S. Department of  
29 Agriculture's (USDA's) policy on school meals<sup>3,4</sup>. Papers for review were chosen from the  
30 resultant lists and from hand searches. ~~When data did not appear sufficient or were inconclusive,~~  
31 recommendations were based upon expert and/or consensus opinion by experienced researchers  
32 and clinicians. ~~Expert and/or consensus opinion by experienced researchers and clinicians was~~  
33 also considered.

**This draft does not constitute an official AAPD health oral policy or clinical guideline until approval by the General Assembly. Circulation is limited to AAPD members.**

34

## 35 Background

36 There has been a reduction in untreated caries among certain demographic groups of children and  
37 adolescents in recent years (Brown, Wall, and Lazar 2000). Frequent consumption of refined  
38 carbohydrates, however, can be a significant factor in the child and adolescent diet that  
39 contributes to the initiation and progression of caries (Ismail, Burt, and Eklund 1984)  
40 Contemporary changes in beverage consumption patterns have the potential to increase dental  
41 caries rates in children. Vending machines provide ready access to highly-refined carbohydrates,  
42 especially soft drinks. Consumption of regular soda pop, powdered beverages, and to a lesser  
43 extent 100 percent% juice have been associated with an increased caries risk<sup>5</sup>. The acids present  
44 in carbonated beverages can have a greater deleterious effect (i.e., erosion) on enamel than the  
45 acids generated by oral flora from the sugars present in sweetened drinks <sup>6</sup>.Analysis of the third  
46 National Health and Nutrition Examination Survey data<sup>7</sup> indicated that 13 percent of children  
47 aged 2 through 10 had diets high in consumption of carbonated soft drinks, and these children had  
48 a significantly higher dental caries experience in the primary dentition than did children with  
49 other fluid consumption patterns<sup>8</sup>. Many soft drinks also contain significant amounts of caffeine  
50 which, if consumed regularly may lead to increased, even habitual usage (Majewski,2001) A  
51 significant increase in caries scores has been reported for children who attended schools that had  
52 vending machines<sup>9</sup>.

53

54

55 There is growing concern that vending machine items with limited nutritional value are  
56 “competitive foods”, resulting in snack options that are considered to be of poor nutritional  
57 quality<sup>10-12</sup>;An effort is underway to increase the healthy choices available in vending machines  
58 by replacing sugar sweetened drinks with bottled water, candy bars with nutrition bars, and  
59 potato chips with dried fruits and nuts.(USDA 2011)

60

61 ~~Increased consumption of refined carbohydrates by children and adolescents may have a negative~~  
62 ~~impact on their overall nutrition by displacing foods with higher nutrient density (Freeman and~~  
63 ~~Sheiham 1997). Nutrient density refers to the amount of nutrients in a food compared to the~~  
64 ~~calories. Foods low in calories and high in nutrients are nutrient rich (dense). Foods high in~~  
65 ~~calories and low in nutrients are of poor nutritional quality. As teenage girls have increased their~~  
66 ~~consumption of soft drinks, their consumption of milk has decreased by 40 percent, which may~~

**This draft does not constitute an official AAPD health oral policy or clinical guideline until approval by the General Assembly. Circulation is limited to AAPD members.**

67 contribute to a decrease in bone density, subsequent increase in fractures, and future risk of  
68 osteoporosi<sup>13,14</sup>. Increased ingestion of sugar-sweetened drinks also has been linked to the  
69 increased incidence of childhood obesity<sup>15</sup> .Of all beverages, increasing soda consumption  
70 predicted the greatest increase of body mass index (BMI) and the lowest increase in calcium  
71 intake.<sup>16</sup> Carbonated soda consumption was negatively associated with vitamin A intake in all age  
72 strata, calcium intake in children younger than 12 years, and magnesium intake in children aged  
73 6 years and older<sup>17</sup>. Many soft drinks also contain significant amounts of caffeine which, if  
74 consumed regularly, may lead to increased, even habitual, usage<sup>18</sup>.

75  
76 ~~Many beverage and snack food products are targeted specifically and aggressively at the child~~  
77 ~~and adolescent market. Vending machines containing these products are readily accessible to~~  
78 ~~children and adolescents in schools (Rovner et al 2011; Turner and Chaloupka 2011). exchange~~  
79 ~~for money to the individual school or districts, “pouring rights contracts” give beverage~~  
80 ~~companies exclusive rights to sell their products at school events and place vending machines on~~  
81 ~~school property, along with other measures that increase student exposure to the beverages~~  
82 ~~(Maihofer 2000). Presently, several states have legislation and others are considering legislation~~  
83 ~~to limit pouring rights contracts to healthier options (Berthold 2000; NCSL 2005; Kubik, Lytle,~~  
84 ~~and Farbaksh 2011; Shatley et al 2011).~~

85  
86 In 2013, the USDA initiated smart snacks standards prompting school districts to offer healthier  
87 food and beverages in vending machines, school stores, and à la carte cafeteria lines<sup>19</sup>. The final  
88 rules released by the USDA in July, 2016 state that schools must continue to meet strong  
89 nutritional guidelines for snacks/drinks sold to children, and they prevent marketing of foods and  
90 drinks inconsistent with those standards.<sup>4</sup> The USDA’s rules establish a national baseline of these  
91 standards with the overall goal of improving health and nutrition of our children.

92

### 93 Policy statement

94 The AAPD:

- 95 • Encourages collaboration with ~~other~~ dental and medical organizations, governmental  
96 agencies, education officials, parent and consumer groups, and corporations to increase  
97 public awareness of the ~~negative-adverse~~ effects of frequent and/or inappropriate intake  
98 of ~~sweetened drinks (carbonated and noncarbonated)-~~sugar sweetened beverages and low  
99 nutrient dense snack foods on ~~infant, child, and adolescent~~ children’s oral health,

**This draft does not constitute an official AAPD health oral policy or clinical guideline until approval by the General Assembly. Circulation is limited to AAPD members.**

- 100            ~~nutrition,~~ and general health.
- 101            • Promotes educating and informing the public regarding the importance of good
- 102            nutritional habits as they pertain to consumption of items available in vending machines.
- 103            • Encourages school officials and parent groups to consider the importance of maintaining
- 104            healthy choices in vending machines.
- 105            • Opposes any arrangements that may decrease access to healthy nutritional choices for
- 106            children and adolescents in schools.
- 107            ~~• Encourages school officials and parent groups to consider the importance of maintaining~~
- 108            ~~healthy choices in vending machines in schools and encourages the promotion of food~~
- 109            ~~and beverages of high nutritional value; bottled water and other more healthy choices~~
- 110            ~~should be available instead of soft drinks.~~
- 111            ~~• Promotes educating and informing the public about the importance of good oral hygiene~~
- 112            ~~and nutritional habits as they pertain to consumption of items available in vending~~
- 113            ~~machines.~~

114

## 115    References

- 116    1.    American Academy of Pediatrics Committee on School Health. Policy statement: Soft
- 117            drinks in schools. Pediatrics 2004;113(1Pt+1):152-4. Reaffirmed December, 2008 ,
- 118            2012
- 119    2.    American Academy of Pediatrics. 2015. Policy statement : Snacks, sweetened
- 120            beverages, added sugars, and schools. Pediatrics 135(3): D1-4
- 121    3. ~~US Dept of Agriculture Food and Nutrition Service Office of Analysis, Nutrition, and~~
- 122            ~~Evaluation. National School Lunch Program Competitive Food Policies by State. Available~~
- 123            ~~at: “<http://www.usda.gov/wps/portal/usda/usda>~~
- 124            ~~home?contentidonly=true&contentid=2011/01/0010.xml”.~~ Accessed July 10, 2012.
- 125    3.    US Dept of Agriculture Food and Nutrition Service. Available at”
- 126            <https://www.fns.usda.gov/school-meals/nutrition-standards-school-meals>. Accessed March
- 127            22, 2017. (Archived by WebCite® at “<http://www.webcitation.org/6p9bV3O3A>”)
- 128    4.    US Dept of Agriculture Food and Nutrition Service. National School Lunch Program and
- 129            School Breakfast Program: Nutrition Standards for All Foods Sold in School as Required
- 130            by the Healthy, Hunger-Free Kids Act of 2010. Final rule and interim final rule. 7 C.F.R.
- 131            Parts 210 and 220. Available at: “[CCA2016. 1i. P\\_VendingMachines-Final](https://www.gpo.gov/fdsys/pkg/FR-2016-07-</a></u></p></div><div data-bbox=)

**This draft does not constitute an official AAPD health oral policy or clinical guideline until approval by the General Assembly. Circulation is limited to AAPD members.**

- 132 [29/pdf/2016-17227.pdf](#)” Accessed ~~September 21, 2016~~ March 22, 2017. ([Archived by](#)  
133 [WebCite® at “http://www.webcitation.org/6p9bqqE15”](#))
- 134 5. Marshall TA, Levy SM, Broffitt B, Warren JJ, Eichenberger-Gilmore JM, Burns TL,  
135 Stumbo PJ Dental caries and beverage consumption in young children. *Pediatrics*. 2003  
136 Sep;112(3 Pt 1):e184-91.
- 137 6. Joint Report of the American Dental Association Council on Access, Prevention, and  
138 Interprofessional Relations and Council on Scientific Affairs to the House of Delegates.  
139 Response to Resolution 73H-2000. Chicago, Ill: ADA; October 2001.
- 140 7. Center for Disease Control and Prevention (CDC), National Center for Health Statistics  
141 (NCHS). National Health and Examination Survey Data. (NHANES III) Hyattsville, MD :  
142 US Department of Health and Human Services, Center for Disease Control, 2012 Available  
143 at: [“https://www.cdc.gov/nchs/nhanes/nhanes3.htm”](https://www.cdc.gov/nchs/nhanes/nhanes3.htm). Accessed March 22, 2017.  
144 ([Archived by WebCite® at “http://www.webcitation.org/6p9cTnaGZ”](#))
- 145 8. Sohn W, Burt BA, Sowers MR. Carbonated soft drinks and dental caries in the primary  
146 dentition. *J Dent Res* 2006;85(3):262-6.
- 147 9. Maliderou M, Reeves S, Nobel C. The effect of social demographic factors, snack  
148 consumption, and vending machine use on oral health of children living in London. *British*  
149 *Dent J* 2006;201(7):441-4.
- 150 10. US Government Accountability Office. Report to Congressional Requests: School Meal  
151 Programs Competitive Foods are Widely Available and Generate Substantial Revenues for  
152 Schools. August 2005. Available at: [“http://www.gao.gov/new.items/d05563.pdf”](http://www.gao.gov/new.items/d05563.pdf).  
153 Accessed ~~June 24, 2012~~ March 22, 2017. ([Archived by WebCite® at](#)  
154 [CCA2016. 1i. P\\_VendingMachines-Final](http://www.webcitation.org/6p9cOMgQF”</a>)</p><p>155 11. Kakarala M, Keast DR, Hoerr S. Schoolchildren’s consumption of competitive foods and<br/>156 beverages, excluding à la carte. <i>J Sch Health</i> 2010;80(9):429-35.</p><p>157 12. Pasch KE, Lytle LA, Samuelson AC, Farbaksh K, Kubik MY, Patnode CD. Are school<br/>158 vending machines loaded with calories and fat: an assessment of 106 middle and high<br/>159 schools. <i>J Sch Health</i> 2011;81(4):212-8.</p><p>160 13. Wyshak G. Teenaged girls, carbonated beverage consumption, and bone fractures. <i>Arch</i><br/>161 <i>Pediatr Adolesc Med</i> 2000;154(6):610-3.</p><p>162 14. Ludwig DS, Peterson KE, Gortmaker SL. Relation between consumption of sugar-<br/>163 sweetened drinks and childhood obesity: A prospective, observational analysis. <i>Lancet</i><br/>164 2001;357(9255):505-8</p></div><div data-bbox=)

**This draft does not constitute an official AAPD health oral policy or clinical guideline until approval by the General Assembly. Circulation is limited to AAPD members.**

- 165 15. Fox MK, Dodd AH Wilson A, Gleason PM. Association between school food environment  
166 and practices and body mass index of US public school children. J Am Diet Assoc  
167 2009;109(2Suppl):S108-17.
- 168 16. Striegel-Moore RH, Thompson D, Affenito SG, Franko DL, Obarzanek E, Barton BA,  
169 Schreiber GB, Daniels SR, Schmidt M, Crawford PB. Correlates of beverage intake in  
170 adolescent girls: the National Heart, Lung, and Blood Institute Growth and Health Study. J  
171 Pediatr. 2006 Feb;148(2):183-7.
- 172 17. Ballew C, Kuester S, Gillespie C. Beverage choices affect adequacy of children's nutrient  
173 intakes. Arch Pediatr Adolesc Med 2000; 154 (11):1148-52.
- 174 18. Majewski R. Dental caries in adolescents associated with caffeinated carbonated beverages.  
175 Pediatr Dent 2001;23 (3):198-203.
- 176 19. US Dept of Agriculture Food and Nutrition Service. National School Lunch Program and  
177 School Breakfast Program: Nutrition Standards for All Foods Sold in School as Required  
178 by the Healthy, Hunger-Free Kids Act of 2010. Proposed Rule. 7 C.F.R. Pars 210 and 220.  
179 Available at: "[http://www.fns.usda.gov/sites/default/files/fdpir/02.13.13-QTC-Nutrition-](http://www.fns.usda.gov/sites/default/files/fdpir/02.13.13-QTC-Nutrition-Standards.pdf)  
180 [Standards.pdf](http://www.fns.usda.gov/sites/default/files/fdpir/02.13.13-QTC-Nutrition-Standards.pdf)" Accessed ~~September 21, 2017~~ March 22, 2017. ([Archived by WebCite® at](http://www.webcitation.org/6p9c4gmHf)  
181 ["http://www.webcitation.org/6p9c4gmHf"](http://www.webcitation.org/6p9c4gmHf))  
182
- 183 ~~Berthold M. Michigan opposes school soda deals. ADA News November 20, 2000:8.~~
- 184 ~~Brown LJ, Wall TP, Lazar V. Trends in total caries experience: Permanent and primary teeth. J~~  
185 ~~Am Dent Assoc 2000;131(2):223-31.~~
- 186 ~~Fox K. Soft drinks under scrutiny. ADA News November 20, 2000:22.~~
- 187 ~~Freeman R, Sheiham A. Understanding decision-making processes for sugar consumption in~~  
188 ~~adolescence. Community Dent Oral Epidemiol 1997;25(3):228-32.~~
- 189 ~~Ismail IA, Burt BA, Eklund SA. The cariogenicity of soft drinks in the United States. J Am Dent~~  
190 ~~Assoc 1984;109 (2):241-5.~~
- 191 ~~Kubik MY, Lytle LA, Farbaksh K. School and district wellness councils and availability of low-~~  
192 ~~nutrient, energy dense vending fare in Minnesota middle and high schools. J Am Diet Assoc~~  
193 ~~2011;111(1):150-5.~~
- 194 ~~Maihofer M. "Pouring wrongs": MDA discourages pop deals. J Mich Dent Assoc 2000;82(2):10.~~  
195 ~~National Council of State Legislatures. Vending machines in schools 2005. Available at:~~  
196 ~~"[http://www.ncsl.org/Issues\\_Research/Health/VendingMachinesinSchools2005/tabid/](http://www.ncsl.org/Issues_Research/Health/VendingMachinesinSchools2005/tabid/14108/Default.aspx)  
197 [14108/Default.aspx](http://www.ncsl.org/Issues_Research/Health/VendingMachinesinSchools2005/tabid/14108/Default.aspx)". Accessed June 24, 2012.~~

**This draft does not constitute an official AAPD health oral policy or clinical guideline until approval by the General Assembly. Circulation is limited to AAPD members.**

198 ~~Rovner AJ, Nansel TR, Wang J, Iannotti RJ. Food sold in school vending machines is associated~~  
199 ~~with overall student dietary intake. J Adolesc Health 2011;48(1):13-9.~~

200 ~~Turner L, Chaloupka F. Wide availability of high-calorie beverages in US elementary schools.~~  
201 ~~Arch Pediatr Adolesc Med 2011;165(3):223-8.~~

202 ~~Whatley Blum JE, Beaudoin CM, O'Brien LM, Polasek M, Harris D, O'Rourke KA. Impact of~~  
203 ~~Maine's statewide nutrition policy on high school food environments. Prev Chronic Dis~~  
204 ~~2011;8(1):A19.~~

205

206

207