

**Supplemental Figure 1. States included in competitive food study by United States Department of Agriculture's Food and Nutrition Service Administrative Regions**



**Supplemental Table 1. Percent compliance with each component of the Smart Snacks standards among n=840 unique competitive foods observed in a national sample of middle and high schools<sup>1</sup>**

Category	Overall Smart Snacks compliance (%)	Calories (≤200 kcal)	Percent of calories from total fat (≤35%)	Percent of calories from saturated fat (<10%)	Trans fat (0g)	Sodium (≤200 mg)	Total sugar (≤ 35% by weight)	Other <sup>2</sup>
<b>Beverages (n=369)</b>								
Water: unflavored (n=22)	100%	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Water: flavored (n=117)	100%*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Milk products <sup>3</sup> (n=11)	82%	N/A	N/A	N/A	N/A	N/A	N/A	N/A
100% fruit juice <sup>4</sup> (n=33)	94%	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Low and no-calorie beverages <sup>5</sup> (n=186)	41%*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Snacks (n=471)</b>								
Salty snacks (n=149)	41%	75%	99%	81%	100%	63%	99%	41%
Sweet snacks (n=208)	43%	69%	99%	72%	100%	80%	68%	43%
Ice cream and frozen treats (n=100)	78%	97%	100%	78%	100%	99%	96%	94%
Yogurt and cheese (n=9)	89%	89%	100%	89%	100%	89%	89%	100%
Fruits and vegetables <sup>6</sup> (n=5)	100%	100%	100%	100%	100%	100%	100%	100%

\* Includes products with non-sugar sweeteners (i.e., artificial sweeteners and other sugar substitutes) that are considered compliant only among high schools, but would not be compliant if offered in a middle school.

<sup>1</sup> Among n= 72 middle and high schools in a national sample of schools selling competitive foods.

<sup>2</sup> “Other” includes: (1) a grain product that contains 50 percent or more whole grains by weight (have a whole grain as the first ingredient); (2) a product with the first ingredient being a fruit, a vegetable, a dairy food, or a protein food; or (3) a combination food that contains at least ¼ cup of fruit and/or vegetable

<sup>3</sup> Milk includes unflavored or flavored fat-free milk, low-fat milk, and milk alternatives as permitted by the National School Lunch Program and School Breakfast program. Compliance for milk products is ≤ 12 fluid ounces.

<sup>4</sup> Compliance for 100% fruit juice is ≤ 12 fluid ounces.

<sup>5</sup> Low and no-calorie beverages (high school only) include low calorie drinks with the equivalent of 5 calories per fluid ounce (maximum of 60 kcals/12 fluid ounces) and no-calorie beverages with less than 5 calories per 8 fluid ounces (maximum of 10 calories/20 fluid ounce).

<sup>6</sup> Includes combinations of fruit or vegetables with dips or nut butters (e.g., apples with peanut butter).

**Supplemental Table 2. Average Smart Snacks compliance, nutrients, and artificial sugar and dyes among n=2,824 competitive foods offered in a national sample of middle and high schools with competitive foods<sup>1</sup>**

Category	Smart Snacks compliant (%)	Calories (kcal)*, range	Total fat (g), range	Total fat (%)*, range	Saturated fat (g), range	Saturated fat (%)*, range	Sodium (mg)*, range	Total sugars (g)*, range	Added sugars (g), range	Percent calories from added sugars	Fiber (g), range	Contains non- sugar sweeteners <sup>2*</sup> (%)	Contains synthetic dye(s) <sup>3</sup> (%)
Beverages													
Middle (n=181)	75%	75 (0-290)	0.0 (0-4.5)	0.0 (0-6)	0.0 (0-0.5)	0.0 (0-3)	39 (0-270)	16.9 (0-73)	2.9 (0-73)	15% (0-100%)	0.0 (0-2)	12%	8%
High (n=836)	81%	37 (0-290)	0.0 (0-4.5)	0.0 (0-6)	0.0 (0-2.5)	0.1 (0-13)	79 (0-960)	8.1 (0-73)	5.1 (0-73)	27% (0-100%)	0.0 (0-5)	52% <sup>5</sup>	25%
Salty Snacks													
Middle (n=295)	74%	138 (60-330)	5.6 (0.5-29)	7.5 (1-45)	0.8 (0-4)	4.3 (0-21)	201 (65-900)	1.5 (0-16)	1.0 (0-16)	2.9% (0-29%)	1.6 (0-12)	0%	32%
High (n=610)	70%	140 (60-450)	5.8 (1-29)	7.7 (1-45)	0.9 (0-9)	4.7 (0-45)	195 (25-520)	1.7 (0-20)	1.2 (0-16)	3.5% (0-32%)	1.5 (0-12)	0%	30%
Sweet Snacks													
Middle (n=184)	77%	166 (50-400)	4.4 (0-14)	5.8 (0-36)	1.2 (0-6)	6.0 (0-23)	133 (0-620)	13.3 (2-52)	12.2 (0-32)	30% (0-74%)	1.9 (0-9)	0%	10%
High (n=481)	61%	182 (0-720)	5.2 (0-34)	6.8 (0-45)	1.7 (0-16)	8.3 (0-26)	125 (25-540)	15.8 (0-102)	14.7 (0-102)	32% (0-96%)	1.7 (0-9)	1%	17%
Ice Cream and Frozen Treats													
Middle (n=113)	86%	127 (40-320)	2.5 (0-12)	2.9 (0-15)	1.1 (0-7)	5.2 (0-35)	61 (0-210)	16.7 (6-37)	10.1 (0-37)	34% (0-82%)	0.2 (0-1)	0%	33%
High (n=106)	95%	122 (60-200)	2.3 (0-12)	3.0 (0-15)	1.0 (0-7)	5.3 (0-35)	59 (0-170)	15.5 (11-30)	9.4 (0-17)	33% (0-68%)	0.2 (0-2)	0%	38%
Yogurt and Cheese													
Middle (n=4)	100%	83 (60-100)	0.0 (0-0)	0.0 (0-0)	0.0 (0-0)	0.0 (0-0)	58 (45-70)	10.5 (9-12)	5.0 (4-6)	25% (20-29%)	0.0 (0-0)	0%	0%
High (n=6)	83%	140 (80-220)	4.5 (0-10)	6.0 (0-13)	2.2 (0-4)	10.7 (0-20)	159 (75-319)	11.5 (0-23)	7.8 (0-17)	17% (0-38%)	0.8 (0-3)	0%	0%
Fruits and Vegetables <sup>4</sup>													
Middle (n=2)	100%	145 (30-260)	8.0 (0-16)	12.5 (0-25)	1.5 (0-3)	7.5 (0-15)	70 (0-140)	10.5 (6-15)	0.0 (0-0)	0% (0-0)	3.0 (1-5)	0%	0%
High (n=6)	100%	125 (30-260)	5.3 (0-16)	8.3 (0-25)	1.0 (0-3)	5.0 (0-15)	48 (0-140)	12.7 (6-16)	0.0 (0-0)	0% (0-0)	2.8 (1-5)	0%	0%

\*Regulated by the Smart Snack standards (total sugar is regulated as a percentage of the product weight [ $\leq 35\%$  by weight])

<sup>1</sup> Among n= 72 middle and high schools in a national sample of schools selling competitive foods, which includes the total number of products available across multiple locations within a school.

<sup>2</sup>Non-sugar sweeteners (i.e., artificial sweeteners and other sugar substitutes) are allowed by the Smart Snacks standards within high schools only. Those examined included: aspartame (e.g., NutraSweet and Equal); acesulfame potassium (e.g., Sweet One); saccharin (e.g., Sweet'N Low); sucralose (e.g., Splenda); and stevia.

<sup>3</sup> Synthetic food dyes and other additives are not regulated by the Smart Snacks standards. Those examined included: Blue No. 1; Blue No. 2; Green No. 3; Red No. 3; Red No. 40; Yellow No. 5; Yellow No. 6; titanium dioxide; and tert-butylhydroquinone (TBHQ).

<sup>4</sup> Includes combinations of fruit or vegetables with dips or nut butters (e.g., apples with peanut butter)

<sup>5</sup> 47% of products contained artificial sweeteners in high schools (i.e., excluding the natural sweetener stevia). Stevia was not present in any beverages in middle schools nor in any food products.

**Supplemental Table 3. Differences in Smart Snacks compliance among different competitive food categories by school characteristics<sup>1</sup>**

Category	% Compliance <sup>2</sup>	P-value <sup>3</sup>
<b>Beverages (n=1,017)</b>		
Grade Level		
High	76%	Ref*
Middle	73%	0.6
Urbanicity		
Urban	68%	Ref
Suburban	76%	0.2
Rural	79%	0.1
FNS Region		
Mid Atlantic	52%	Ref
Midwest	76%	0.02
Mountain Plains	77%	0.05
Northeast	79%	0.02
Southeast	76%	0.2
Southwest	87%	0.001
West	74%	0.1
Location		
Inside Cafeteria	86%	Ref
School Store	62%	0.002
Other Locations	75%	0.005
Oversees Competitive Foods		
Food Service Director	80%	Ref
Other <sup>4</sup>	69%	0.1
<b>Salty Snacks (n=905)</b>		
Grade Level		
High	54%	Ref
Middle	58%	0.4
Urbanicity		
Urban	58%	Ref
Suburban	55%	0.8
Rural	55%	0.8
FNS Region		
Mid Atlantic	43%	Ref
Midwest	52%	0.6
Mountain Plains	64%	0.2
Northeast	48%	0.7
Southeast	74%	0.1
Southwest	68%	0.1
West	41%	0.9
Location		
Inside Cafeteria	87%	Ref
School Store	16%	<0.0001
Other Locations	65%	<0.0001
Oversees Competitive Foods		
Food Service	67%	Ref

Other	45%	0.04
Sweet Snacks (n=665)		
Grade Level		
High	56%	Ref
Middle	63%	0.2
Urbanicity		
Urban	60%	Ref
Suburban	59%	0.9
Rural	60%	0.9
FNS Region		
Mid Atlantic	43%	Ref
Midwest	54%	0.4
Mountain Plains	70%	0.1
Northeast	68%	0.1
Southeast	80%	0.06
Southwest	67%	0.08
West	35%	0.7
Location		
Inside Cafeteria	84%	Ref
School Store	32%	<0.0001
Other Locations	63%	<0.0001
Oversees Vending Machines		
Food Service	70%	Ref
Other	49%	0.04

\*Reference category.

<sup>1</sup> Among n= 72 middle and high schools in a national sample of schools selling competitive foods (n=2,824 competitive foods offered across multiple locations within the schools)

<sup>2</sup> % Compliant = number of Smart Snacks compliant competitive foods / total number of competitive foods.

Compliance is estimated using least squares means regression.

<sup>3</sup> Calculated using mixed methods analysis of variance, accounting for repeated measures within schools and clustering within school districts (all covariates simultaneously included in models).

<sup>4</sup> Other includes outside vendors, principal, student organizations, or other organizations.

**Supplemental Table 4. Percent compliance with the Smart Snacks standards by nutrient standard among competitive foods observed in a national sample of middle and high schools<sup>1</sup>**

All Snacks	Calories (≤200 kcal)		Percent of calories from saturated fat (<10%)		Sodium (≤200 mg)		Total sugar (≤ 35% by weight)		Other <sup>2</sup>	
	% Compliance <sup>2</sup>	P-value <sup>3</sup>	% Compliance	P-value	% Compliance	P-value	% Compliance	P-value	% Compliance	P-value
Urbanicity										
Urban	83%	Ref	81%	Ref	83%	Ref	87%	Ref	57%	Ref
Suburban	84%	0.9	89%	0.6	82%	0.8	84%	0.3	58%	0.9
Rural	91%	0.1	84%	0.1	87%	0.5	81%	0.1	61%	0.6
FNS Region										
Mid Atlantic	79%	Ref	71%	Ref	79%	Ref	85%	Ref	42%	Ref
Midwest	84%	0.5	83%	0.1	85%	0.5	78%	0.2	57%	0.2
Mountain Plains	97%	0.05	87%	0.06	93%	0.1	84%	0.8	67%	0.05
Northeast	90%	0.2	85%	0.07	87%	0.4	87%	0.7	58%	0.2
Southeast	94%	0.2	97%	0.01	88%	0.4	88%	0.8	77%	0.03
Southwest	95%	0.04	86%	0.03	94%	0.05	85%	0.9	70%	0.01
West	64%	0.1	84%	0.1	64%	0.1	80%	0.4	41%	0.9
Location										
Inside Cafeteria	87%	Ref	95%	Ref	92%	Ref	99%	Ref	85%	Ref
School Store	87%	0.2	83%	0.0001	82%	0.04	65%	<0.0001	30%	<0.0001
Other Locations	76%	<0.0001	76%	<0.0001	79%	<0.0001	88%	<0.0001	62%	<0.0001
Oversees Vending Machines										
Food Service	93%	Ref	91%	Ref	90%	Ref	85%	Ref	69%	Ref
Other	79%	0.03	79%	0.02	79%	0.04	83%	0.7	49%	0.01
Type of Snack										
Salty snacks (n=905)										
Urbanicity										
Urban	80%	Ref	83%	Ref	73%	Ref	100%	Ref	58%	Ref
Suburban	86%	0.3	84%	0.8	73%	0.9	100%	0.9	55%	0.8
Rural	92%	0.06	86%	0.5	77%	0.6	99%	0.6	55%	0.8
FNS Region										
Mid Atlantic	73%	Ref	73%	Ref	63%	Ref	100%	Ref	43%	Ref
Midwest	89%	0.08	81%	0.3	75%	0.3	99%	0.8	52%	0.6
Mountain Plains	94%	0.04	85%	0.2	87%	0.04	99%	0.7	64%	0.2
Northeast	85%	0.2	79%	0.5	75%	0.2	100%	0.9	48%	0.7

Southeast	96%	0.07	94%	0.06	82%	0.2	100%	0.9	74%	0.1
Southwest	89%	0.06	86%	0.08	83%	0.04	100%	0.9	68%	0.1
West	80%	0.5	93%	0.03	55%	0.5	100%	0.9	41%	0.9
Location										
Inside Cafeteria	99%	Ref	97%	Ref	96%	Ref	100%	Ref	87%	Ref
School Store	82%	0.006	68%	<0.0001	57%	<0.0001	100%	0.9	16%	<0.0001
Other Locations	77%	<0.0001	88%	0.003	70%	<0.0001	99%	0.8	65%	<0.0001
Oversees Vending Machines										
Food Service	96%	Ref	90%	Ref	83%	Ref	100%	Ref	67%	Ref
Other	77%	0.003	79%	0.07	65%	0.01	99%	0.7	45%	0.04
Sweet snacks (n=665)										
Urbanicity										
Urban	85%	Ref	85%	Ref	92%	Ref	69%	Ref	60%	Ref
Suburban	80%	0.5	85%	0.9	94%	0.8	56%	0.03	59%	0.9
Rural	89%	0.6	91%	0.3	96%	0.6	56%	0.07	60%	0.9
FNS Region										
Mid Atlantic	83%	Ref	72%	Ref	97%	Ref	62%	Ref	42%	Ref
Midwest	79%	0.7	84%	0.3	91%	0.5	48%	0.2	54%	0.4
Mountain Plains	99%	0.3	94%	0.08	96%	0.9	68%	0.6	70%	0.1
Northeast	91%	0.6	95%	0.08	93%	0.7	67%	0.7	68%	0.1
Southeast	97%	0.4	99%	0.03	99%	0.6	64%	0.9	80%	0.06
Southwest	99%	0.2	85%	0.2	99%	0.3	67%	0.7	67%	0.08
West	47%	0.01	76%	0.8	71%	0.03	48%	0.3	35%	0.7
Location										
Inside Cafeteria	90%	Ref	98%	Ref	86%	Ref	96%	Ref	84%	Ref
School Store	91%	0.9	84%	0.08	99%	0.0006	16%	<0.0001	32%	<.0001
Other Locations	74%	0.0001	79%	<0.0001	85%	0.7	69%	<0.0001	63%	<.0001
Oversees Vending Machines										
Food Service	88%	Ref	98%	Ref	95%	Ref	60%	Ref	70%	Ref
Other	82%	0.05	76%	0.007	93%	0.8	61%	0.9	49%	0.04

\*Includes products with artificial sweeteners that are only compliant in high schools.

<sup>1</sup> Among n= 72 middle and high schools in a national sample of schools selling competitive foods.

<sup>2</sup> "Other" includes: (1) a grain product that contains 50 percent or more whole grains by weight (have a whole grain as the first ingredient); (2) a product with the first ingredient being a fruit, a vegetable, a dairy food, or a protein food; or (3) a combination food that contains at least ¼ cup of fruit and/or vegetable



<sup>3</sup> Milk includes unflavored or flavored fat-free milk, low-fat milk, and milk alternatives as permitted by the National School Lunch Program /School Breakfast program. Compliance for milk products is  $\leq$  12 fluid ounces.

<sup>4</sup> Compliance for 100% fruit juice is  $\leq$  12 fluid ounces.

<sup>5</sup> Low and no-calorie beverages (high school only) include low calorie drinks with the equivalent of 5 calories per fluid ounce (maximum of 60 kcals/12 fl oz) and no-calorie beverages with less than 5 calories per 8 fluid ounces (maximum of 10 calories/20 fl oz).

<sup>6</sup> Includes combinations of fruit or vegetables with dips or nut butters (e.g., apples with peanut butter)