

# School Wellness Strategies: What does the evidence say?

Southern Obesity Summit  
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**Sarah Sliwa**, Division of Population Health

# Whole School, Whole Community, Whole Child



# School Wellness Strategies



# Presentation Outline



**Interventions to Support Healthier Foods and Beverages in Schools:**  
Review & Recommendations:



**Increasing Access to Drinking Water in Schools:** Emerging insights



**Safeguards for BMI Measurement in Schools:** What are they? Are they in place? :



# Community Preventive Services Task Force: Interventions to Support Healthier Foods and Beverages in Schools

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Community Guide Branch

Division of Public Health Information Dissemination

Center for Surveillance, Epidemiology, and Laboratory Services

[TheCommunityGuide.org](http://TheCommunityGuide.org)



## The Community Guide

# Disclaimer

The findings and conclusions in this presentation do not necessarily represent the official position of the Centers for Disease Control and Prevention.

The Centers for Disease Control and Prevention “provides administrative, research, and technical support for the Community Preventive Services Task Force.”

[PHS Act § 399U(c)]

# **Introduction to The Community Guide and the Community Preventive Services Task Force**

Purpose, People, Processes, and Products



# What is The Community Guide?

- Credible source of systematic reviews and findings of the Community Preventive Services Task Force  
([www.thecommunityguide.org](http://www.thecommunityguide.org))
- Focuses on population-based interventions
  - Communities
  - Health care systems





## Community Preventive Services Task Force (CPSTF)

- Independent, nonfederal panel of 15 public health and prevention experts that provides evidence-based findings and recommendations about community preventive services, programs, and other interventions to improve health
- Members represent a broad range of research, practice, and policy expertise in community preventive services, public health, health promotion, and disease prevention

# Topics for CPSTF Systematic Reviews (as of 2017)

## Reviews Organized by Environment

Health equity (Social Environment)

## Reviews by Risk Behavior

Alcohol abuse/misuse

Cardiovascular disease prevention

Physical inactivity

Poor nutrition

Tobacco use

Unhealthy sexual behaviors

## Reviews by Specific Condition

Cancer prevention

Diabetes

Mental health

Motor vehicle injuries

Obesity

Oral health

Vaccine-preventable diseases

Violence prevention

## Reviews Organized by Setting

Worksite health promotion

## Reviews Organized by Life Stage

Adolescent health

## Special Projects

Health communication

Emergency preparedness

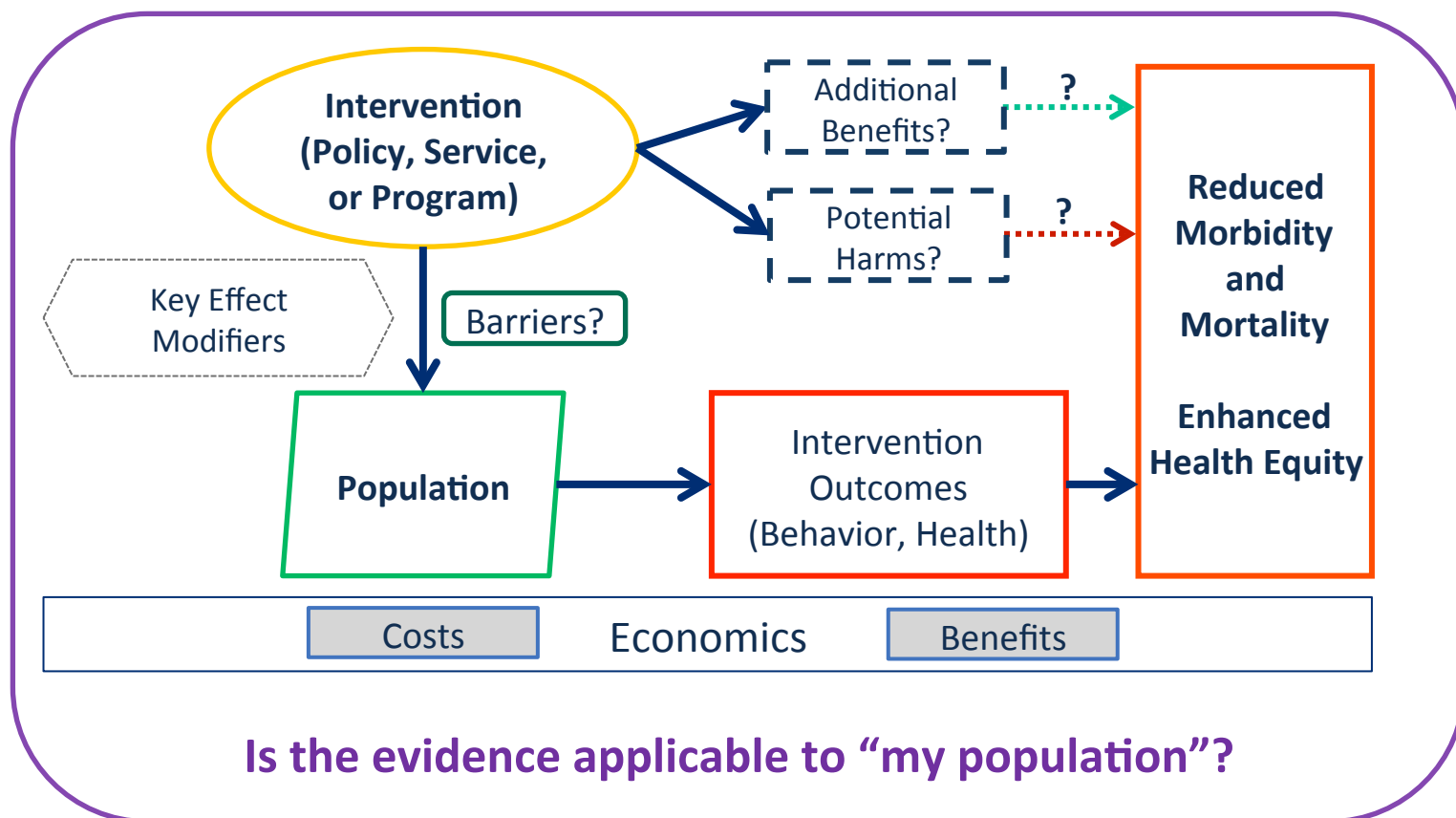
# Critical Questions to Ask When Evaluating a Public Health Intervention

- First question: Does it work?
- If the intervention works, then
  - How well does it work?
  - For whom?
  - Under what conditions?
  - How does it influence health disparities?
  - What is the cost?
  - Does it provide value?
  - What are important considerations for implementing the intervention?
- Tentative answers to these questions (especially the latter ones) are preferable to no answers

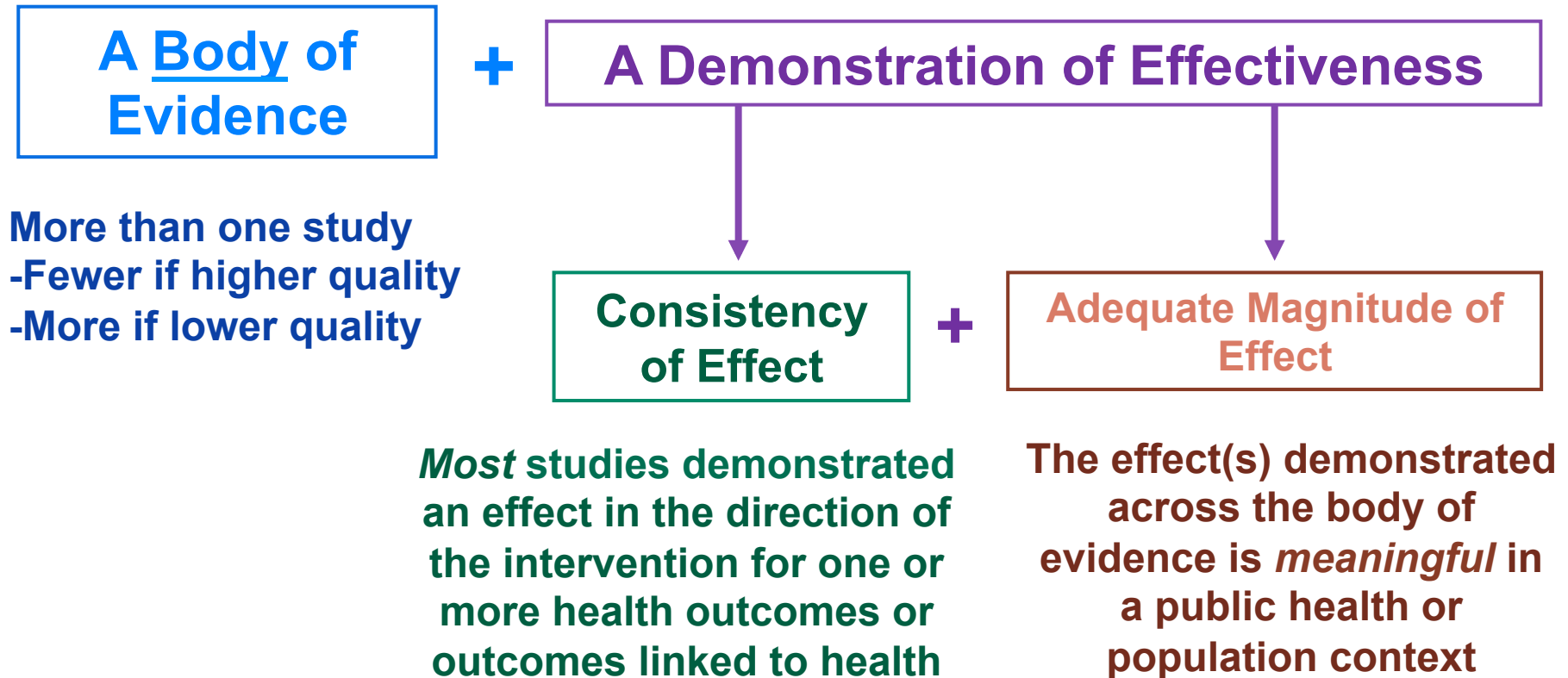
# Steps in a Community Guide Systematic Review

1. Recruit a multidisciplinary team appropriate for the topic
2. Identify interventions to review and outcomes to evaluate
3. Search for evidence, evaluate studies, summarize findings
4. Present evidence, results, and team assessments to the CPSTF
5. CPSTF adopts consensus conclusions
  - Recommend for use of the intervention
  - Recommend against use of the intervention
  - Insufficient Evidence to determine if the intervention works
6. Disseminate review results and research gaps
  - Website summaries, subscriber notices
  - Dissemination products, social media
  - Papers for publication

# What is Considered in a Community Guide Review?



# Minimum Requirements for a CPSTF Conclusion on Intervention Effectiveness



# Using Community Guide Reviews and CPSTF Findings

- Support programs, services, and other interventions
  - Plan and evaluate programs
  - Strengthen applications for programmatic funding
  - Justify program support/funding
  - Plan/modify systems
- Agenda for future research
  - Address identified gaps



# **Interventions to Support Healthier Foods and Beverages in Schools**

A Community Guide Systematic Review

# School Nutrition Environment from CDC Healthy Schools

- School Meals
- Smart Snacks
- Celebration and Rewards
- Water Access
- Food and Beverage Marketing
- Staff Role Modeling
- Healthy Eating Learning Opportunities



# Interventions to Support Healthier Foods and Beverages in Schools

- 1. Meal and Fruit and Vegetable Interventions to Increase the Availability of Healthier Foods and Beverages Provided by Schools**
  - School Meals
  - Fruit and Vegetable programs
- 2. Interventions Supporting Healthier Snack Foods and Beverages Sold or Rewarded in Schools**
  - Smart Snacks
  - Celebration and Rewards
- 3. Combined Interventions to Increase the Availability of Healthier Meals and Snacks in Schools**
  - School Meals and Fruit and Vegetable programs
  - Smart Snacks, Celebrations, and Rewards
- 4. Interventions to Increase Water Access in Schools**
  - Water Access

Interventions also may include the following:

- Healthy food and beverage marketing
- Healthy eating learning opportunities

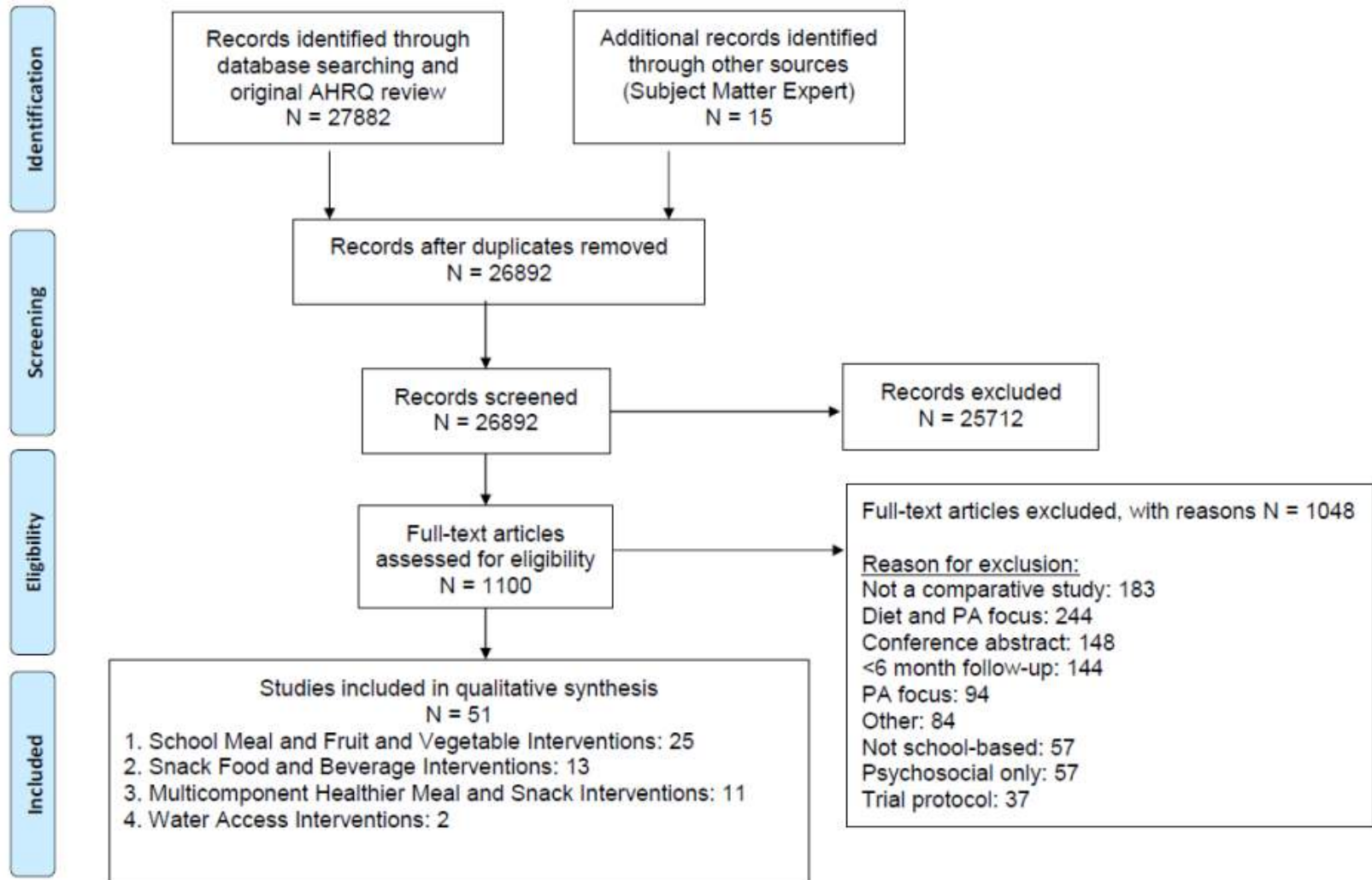
# Research Questions

How effective are ...

1. Meal and fruit and vegetable interventions to increase the availability of healthier foods and beverages provided by schools
2. Interventions supporting healthier snack foods and beverages sold or rewarded in schools
3. Combined interventions to increase the availability of healthier meals and snacks in schools
4. Interventions to increase water access in schools

... in improving dietary or weight-related outcomes?

# Overall Search Results Summary



# Results: Characteristics of Included Studies (n=51)

- Location and setting
  - Majority conducted in U.S. (32 studies)
  - Majority implemented in school setting only (47 studies)
- Population
  - Most studies reported equal numbers of boys and girls
  - Several studies assessed intervention effects among low-income or minority populations
    - 100% First Nations (2 studies)
    - Low income (11 studies)

# 1. Meal and Fruit and Vegetable Interventions to Increase the Availability of Healthier Foods and Beverages Provided by Schools (n=25)

Outcome		Summary of Evidence	Finding
Dietary Outcomes	Fruit and Vegetable Intake	8 studies reporting median relative increase of 20% (IQI 4.3%, 38.5%)	Sufficient evidence of effectiveness
	Diet Quality Indices Fruit Juice Intake Low-Nutrient Food Intake Milk & Milk Alternatives Intake Total Energy Intake	Inconclusive evidence	Too few studies
Weight-related Outcomes	Prevalence of Obesity or Overweight and Obesity	5 studies reporting median decrease of 9.6 pct pts (IQI -10.7, -1.6 pct pts)	Sufficient evidence of effectiveness
	BMI z-score	Inconclusive evidence	Too few studies



## 2. Interventions Supporting Healthier Snack Foods and Beverages Sold or Rewarded in Schools (n=13)

Outcome		Summary of Evidence	Finding
Dietary Outcomes	Sugar-Sweetened Beverage Intake	7 studies reporting mixed evidence of effectiveness	Inconsistent results
	Diet Quality Indices Fruit Juice Intake Fruit and Vegetable Intake Low-Nutrient Food Intake Milk & Milk Alternatives Intake Total Energy Intake Water Intake	Inconclusive evidence	Too few studies
Weight-related Outcomes	Prevalence of Obesity or Overweight and Obesity BMI z-score	Inconclusive evidence	Too few studies

### 3. Combined Interventions to Increase the Availability of Healthier Meals and Snacks in Schools (n=11)

Outcome		Summary of Evidence	Finding
Dietary Outcomes	Diet Quality Indices Fruit and Vegetable Intake Low-Nutrient Food Intake Milk & Milk Alternatives Intake Total Energy Intake Sugar-Sweetened Beverage Intake	4 studies reporting median relative increase of 15% (IQI 1.0%, 45.0%)	Too few studies
Weight-related Outcomes	Prevalence of Obesity or Overweight and Obesity	6 studies reporting favorable results	Sufficient evidence of effectiveness
	BMI z-score	Inconclusive evidence	Too few studies

## 4. Interventions to Increase Water Access in Schools (n=2)

Outcome		Summary of Evidence	Finding
Dietary Outcomes	Water Intake	Inconclusive evidence	Too few studies
Weight-related Outcomes	Prevalence of Obesity or Overweight and Obesity BMI z-score	Inconclusive evidence	Too few studies

# Community Preventive Services Task Force Finding

Intervention Category	Finding Statement
1. Meal and Fruit and Vegetable Interventions to Increase the Availability of Healthier Foods and Beverages Provided by Schools	The CPSTF recommends meal interventions and fruit and vegetable snack interventions to increase the availability of healthier foods and beverages provided by schools. This finding is based on evidence that they increase fruit and vegetable consumption and reduce or maintain the rate of obesity or overweight.
2. Interventions Supporting Healthier Snack Foods and Beverages Sold or Rewarded in Schools	The CPSTF finds insufficient evidence to determine the effectiveness of interventions supporting healthier snack foods and beverages sold or rewarded in schools. Evidence was considered insufficient based on inconsistent findings for sugar-sweetened beverage consumption and too few studies for weight and other dietary outcomes.
3. Combined Interventions to Increase the Availability of Healthier Meals and Snacks in Schools	The CPSTF recommends multicomponent interventions to increase availability of healthier foods and beverages in schools. This findings is based on evidence that they reduce or maintain the rate of obesity or overweight.
4. Interventions to Increase Water Access in Schools	The CPSTF finds insufficient evidence to determine the effectiveness of interventions to increase water access in schools. Evidence is considered insufficient because there were too few studies.

# Evidence Gaps

- Increased consensus about “best measures” for dietary intake and weight-related outcomes would improve comparability among studies
- Secondary outcome of improve home environment or family support for healthier eating
- Schools’ implementation of interventions

# Review Coordination Team

## Staff Team

- Holly Wethington
- Leigh Ramsey Buchanan
- Ramona Finnie
- Devon Okasako-Schmucker
- Shawna Mercer
- Kelly Mattick (Dissemination & Implementation)
- Verughese Jacob (Economics)

## Task Force Members

- Jamie Chriqui (U Illinois at Chicago)
- Tista Ghosh (Colorado Department of Public Health & Environment)

## Task Force Liaison Members

- Emmeline Ochiai (HHS/ODPHP)

## CDC Partners

- Sarah Lee (CDC School Health Branch)
- Caitlin Merlo (CDC School Health Branch)
- Shannon Michael (CDC School Health Branch)
- Janet Fulton (CDC Division of Nutrition, Physical Activity, & Obesity)

## External Partners

- Charlotte Pratt (NIH)
- Youfa Wang (Ball State U)

# Learn More at [www.thecommunityguide.org](http://www.thecommunityguide.org)

- Announcement:  
<https://www.thecommunityguide.org/content/obesity-interventions-support-healthier-foods-and-beverages-schools>
- One page summary:  
<https://www.thecommunityguide.org/resources/one-pager-interventions-increase-availability-healthier-foods-and-beverages-schools>
- Submit your story:  
<https://www.thecommunityguide.org/content/the-community-guide-in-action>





# The Community Guide

## Thank You!

**Devon Okasako-Schmucker**

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Division of Public Health Information Dissemination

Center for Surveillance, Epidemiology and Laboratory Services

Office of Public Health Scientific Services

Centers for Disease Control and Prevention

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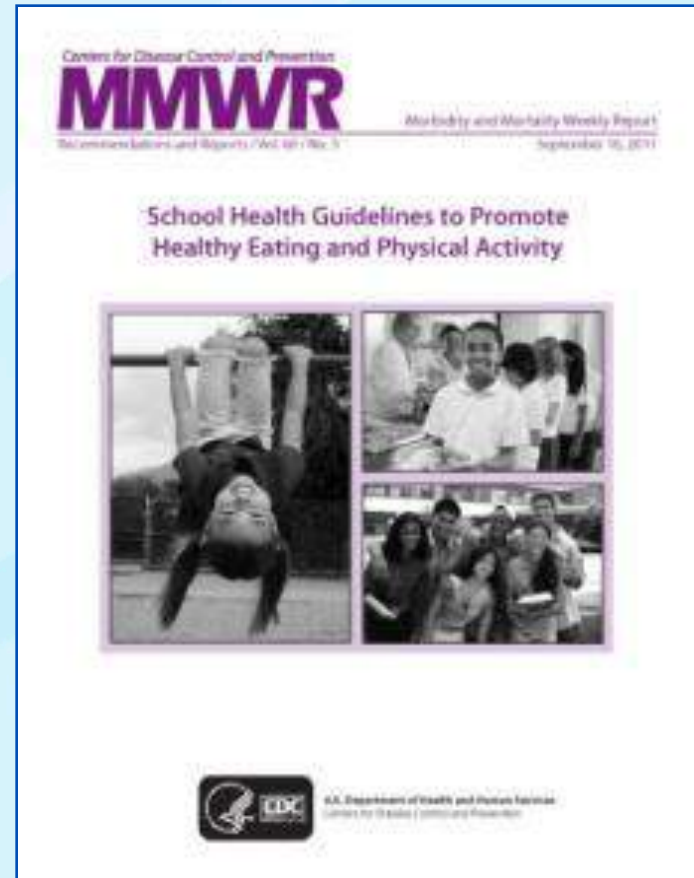
# Increasing Access to Drinking Water in Schools

**Caitlin Merlo, MPH, RDN**  
Health Scientist

Southern Obesity Summit  
October 3, 2017

# School Health Guidelines to Promote Healthy Eating and Physical Activity

1. Policies and Practices
2. School Environments
3. Nutrition Services
4. Physical Education and Physical Activity
5. Health Education
6. School Health Services
7. Family and Community
8. School Employee Wellness
9. Professional Development

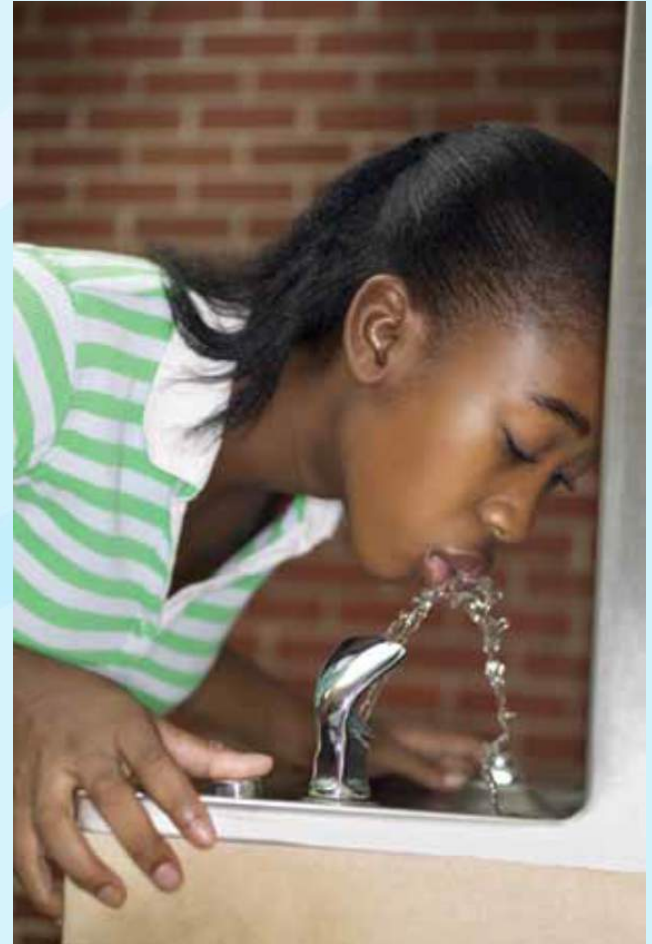


[www.cdc.gov/healthyschools/npao/strategies.htm](http://www.cdc.gov/healthyschools/npao/strategies.htm)

# Benefits of Drinking Water

- ✓ Healthy alternative to sugar sweetened beverages
- ✓ Help children maintain healthy weight status
- ✓ Hydration may improve cognitive function
- ✓ Helps prevent dental cavities

*Child Care Hlth Dev* 2007;33:409–15. *Pediatrics* 2009;123:e661–e667. *Arch Pediatr Adolesc Med.* 2009; 163(4):336–343. *Nutr Rev* 2010;68(8): 439–458. *Hum Brain Mapp* 2011;32:71–79. *Appetite* 2009;53:469–472. *Appetite* 2009;52:776–779. *Appetite* 2009;53:143–146.



# Healthy, Hunger-Free Kids Act Requirements

Schools that participate in the USDA school meal programs are required to provide students with

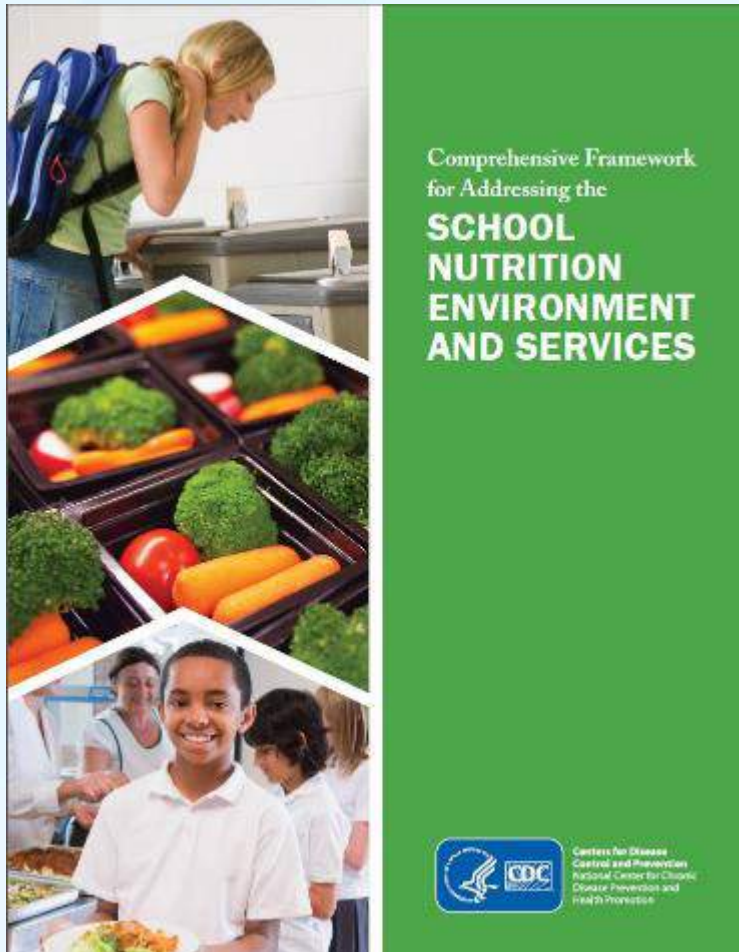
- ✓ potable drinking water
- ✓ free of charge
- ✓ during meal times
  - ✓ where lunch meals are served
  - ✓ when breakfast is served in the cafeteria



7 CFR § 210.10(a)(1) and CFR § 220.8(a)(1)

<http://www.gpo.gov/fdsys/pkg/FR-2013-06-28/pdf/2013-15249.pdf>

# Water Access is Part of a Healthy School Nutrition Environment



[www.cdc.gov/healthyschools/nutrition/schoolnutrition.htm](http://www.cdc.gov/healthyschools/nutrition/schoolnutrition.htm)



**88.3% of schools offer a free source of drinking water in the cafeteria during meal times.**



VS





# What Can Schools Do?

Water Quality	Communication & Education	Water Access
Flush outlets after periods of non-use	Teach about benefits of drinking water	Allow water bottles
Test outlets for contaminants	Promote water	Provide free water
Train custodial staff	Share water testing results	If competitive foods are sold, ensure water is available

# Results: Water Quality



**46.4%**

Flush drinking water outlets after periods of non-use

Pb

**45.8%**

Conduct periodic inspections that test drinking water outlets for lead



**25.6%**

Require training of custodial or maintenance staff on drinking water quality



**51.4%**

Tested drinking water for bacteria during the past 12 months



**48.5%**

Tested drinking water for coliforms during the past 12 months



**48.9%**

Tested drinking water for other contaminants during the past 12 months

Source: School Health Policies and Practices Study, 2014

# Results: Communication + Education



**22.7%**

Provided results of drinking water test(s) to students' families\*



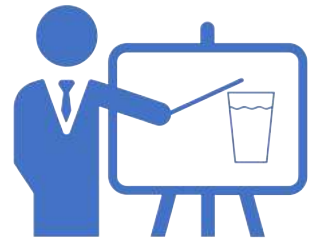
**38.3%**

Provided results of drinking water test(s) to school faculty and staff\*



**15.8**

Provided results of drinking water test(s) to students\*



**81.1%**

Teach the importance of water consumption as part of required instruction

*\*Among schools that had tested their water during the past 12 months*

*Source: School Health Policies and Practices Study, 2014*

## Results: Water Access



74.1%

Permit students to have a water bottle with them during the school day



88.3%

Offer free sources of drinking water in the cafeteria during meal times

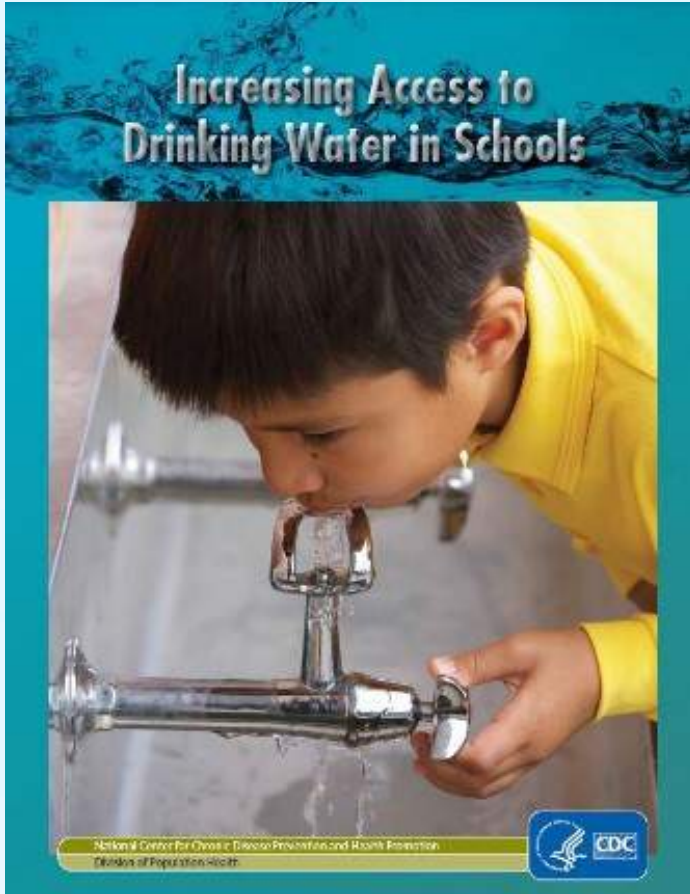


34.6%

Students can purchase bottled water from vending machines or at school stores

Source: School Health Policies and Practices Study, 2014

# Increasing Access to Drinking Water in Schools



- ✓ Where are water sources located?
- ✓ Are they clean and functioning properly?
- ✓ Are cups provided?
- ✓ Are there signs promoting water?
- ✓ Has water been tested recently?
- ✓ Have results been communicated with parents, students, and staff?

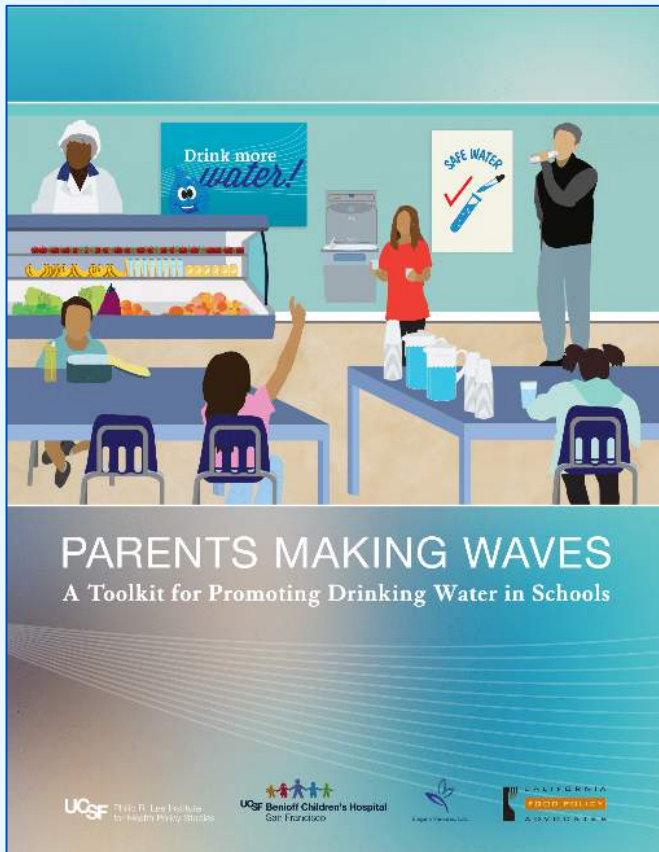
[www.cdc.gov/healthyschools/npao/wateraccess.htm](http://www.cdc.gov/healthyschools/npao/wateraccess.htm)

# 3Ts for Reducing Lead in Drinking Water in Schools and Child Care Facilities

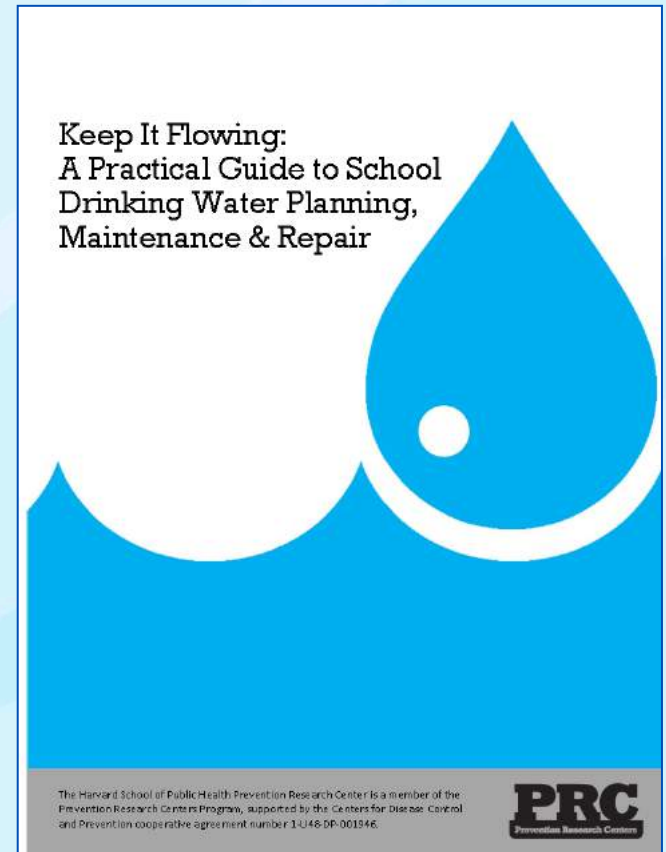


[www.epa.gov/dwreginfo/3ts-reducing-lead-drinking-water-schools-and-child-care-facilities](http://www.epa.gov/dwreginfo/3ts-reducing-lead-drinking-water-schools-and-child-care-facilities)

## Other Tools



<http://www.waterinschools.org/parents-making-waves/>



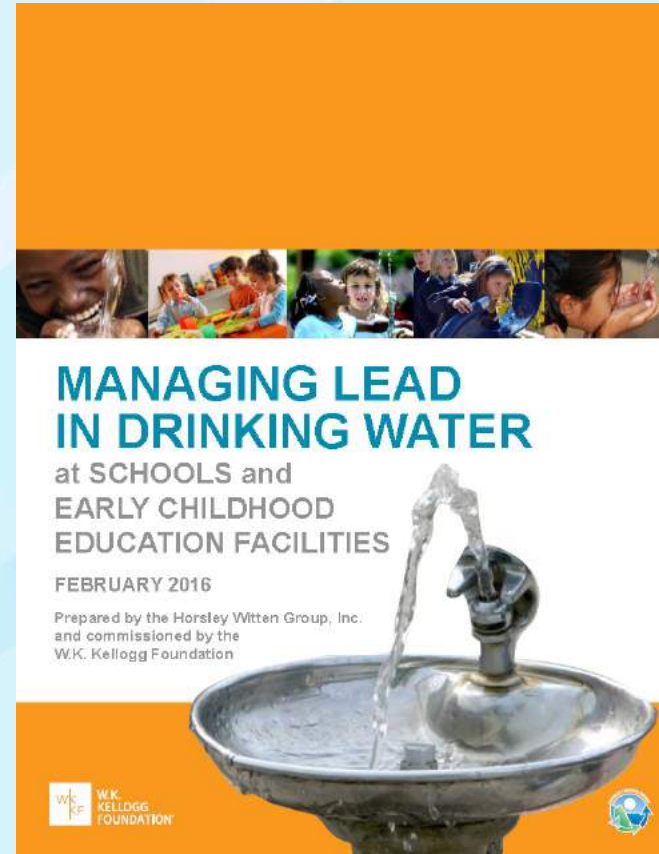
<https://cdn1.sph.harvard.edu/wp-content/uploads/sites/84/2014/09/Keep-It-Flowing.pdf>



# Other Tools



[http://cfpa.net/Water/  
WaterToolkits/Water%20First/  
WaterFirst%20Toolkit-Final.pdf](http://cfpa.net/Water/WaterToolkits/Water%20First/WaterFirst%20Toolkit-Final.pdf)



[https://www.wkkf.org/resource-  
directory/resource/2016/02/managing-  
lead-in-drinking-water-at-schools-and-  
early-childhood-education-facilities](https://www.wkkf.org/resource-directory/resource/2016/02/managing-lead-in-drinking-water-at-schools-and-early-childhood-education-facilities)



# National Drinking Water Alliance



<http://www.drinkingwateralliance.org/>

# Questions? Caitlin Merlo **cmerlo@cdc.gov**

**For more information please contact Centers for Disease Control and Prevention**

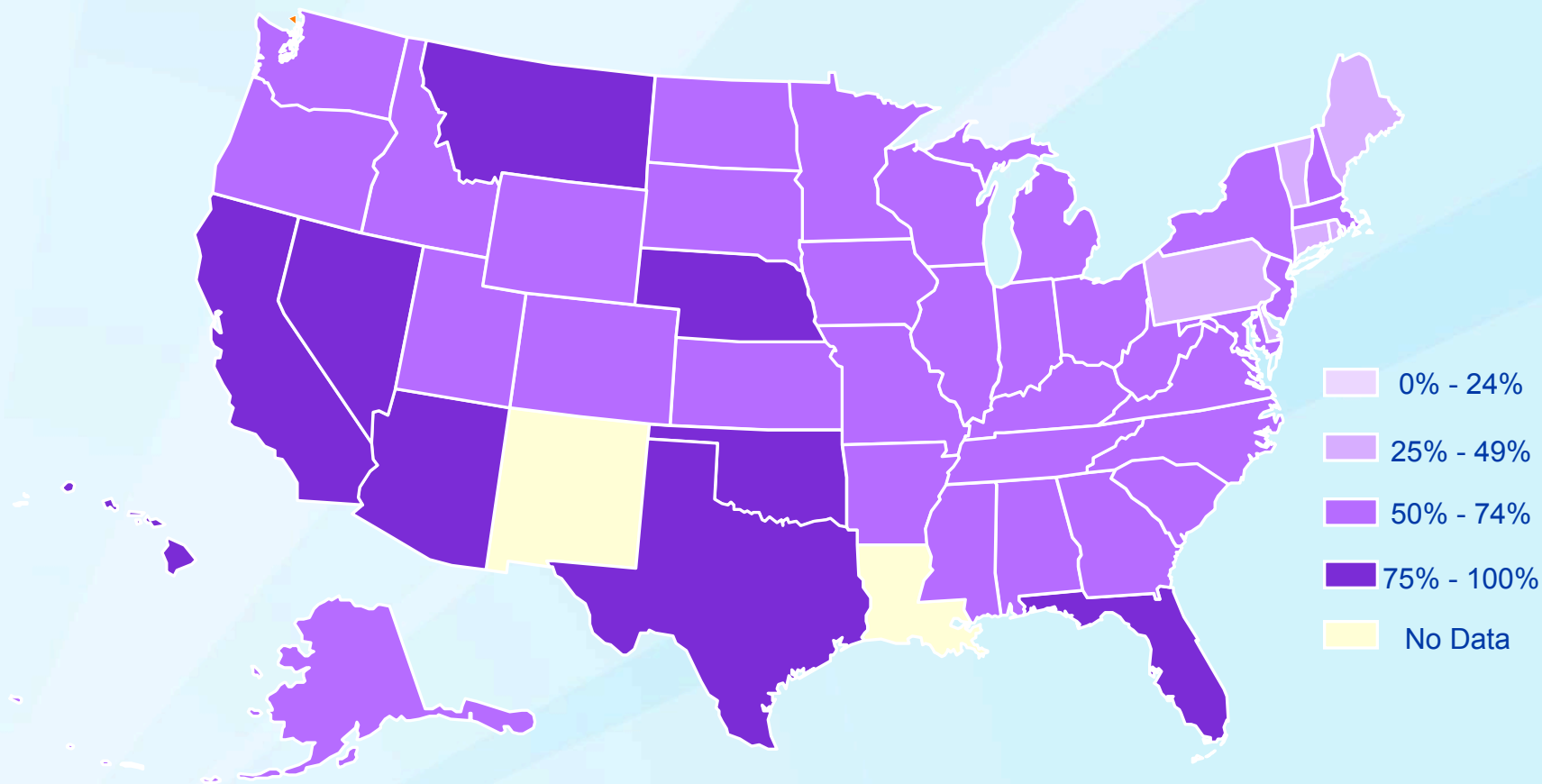
1600 Clifton Road NE, Atlanta, GA 30333

Telephone: 1-800-CDC-INFO (232-4636)/TTY: 1-888-232-6348

E-mail: [cdcinfo@cdc.gov](mailto:cdcinfo@cdc.gov) Web: <http://www.cdc.gov>

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## Percentage of secondary schools that allowed students to have access to drinking water



# Safeguards for BMI Measurement in Schools

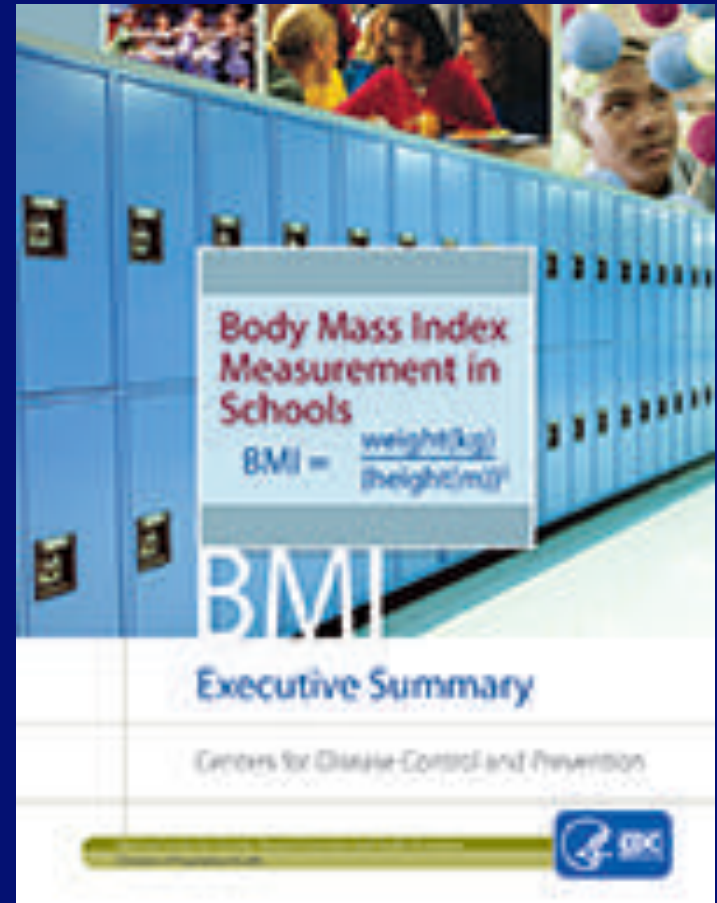
**Sarah Sliwa, PhD**  
Health Scientist

**Southern Obesity Summit**  
**October 3, 2017**



# BMI Measurement in Schools (2007)

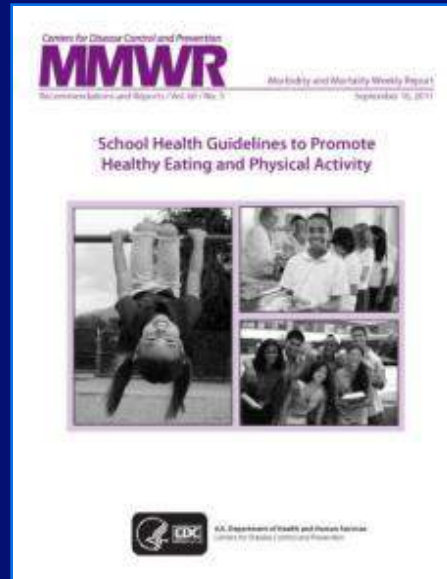
- Not enough evidence about whether or not to implement
- Guidance on **how** to implement



# Prerequisites to launching a BMI measurement program



Safe and  
Supportive



Comprehensive  
Approach



Safeguards



# BMI Measurement in Schools

## Surveillance:

- Identify the percent of students in the school or school district who are underweight, healthy weight, overweight or obese.

## Screening:

- Provide information to families about their child's weight status and any associated health risks

## **Safeguard 1: Early Communications**

Introduce the program to parents, guardians, students, and school staff. Obtain parental consent.





## **Safeguard 2: Staff Training**

Ensure that staff members who measure height and weight have the appropriate expertise and training to obtain accurate and reliable results and minimize the potential for stigmatization.



## **Safeguard 3: Privacy**

Establish safeguards to protect student privacy



## Safeguard 4: Equipment

Use equipment that can accurately and reliably measure height and weight



## **Safeguard 5: Calculate carefully**

Ensure that the BMI number is calculated and interpreted correctly.



## **Safeguard 6: Plan data collection**

Develop efficient data collection procedures.



## **Safeguard 7: Use data appropriately**

Avoid using BMI results to evaluate student or teacher performance.



## **Safeguard 8: Review & Assess**

Regularly evaluate the program and its intended outcomes and unintended consequences



## **SCREENING ONLY**

### **Safeguard 9: Provide resources**

Ensure that resources are available for safe and effective follow up





## SCREENING ONLY

### Safeguard 10: Engage parents

Provide **all** parents with a clear and respectful explanation of the BMI results and a list of appropriate follow up actions.

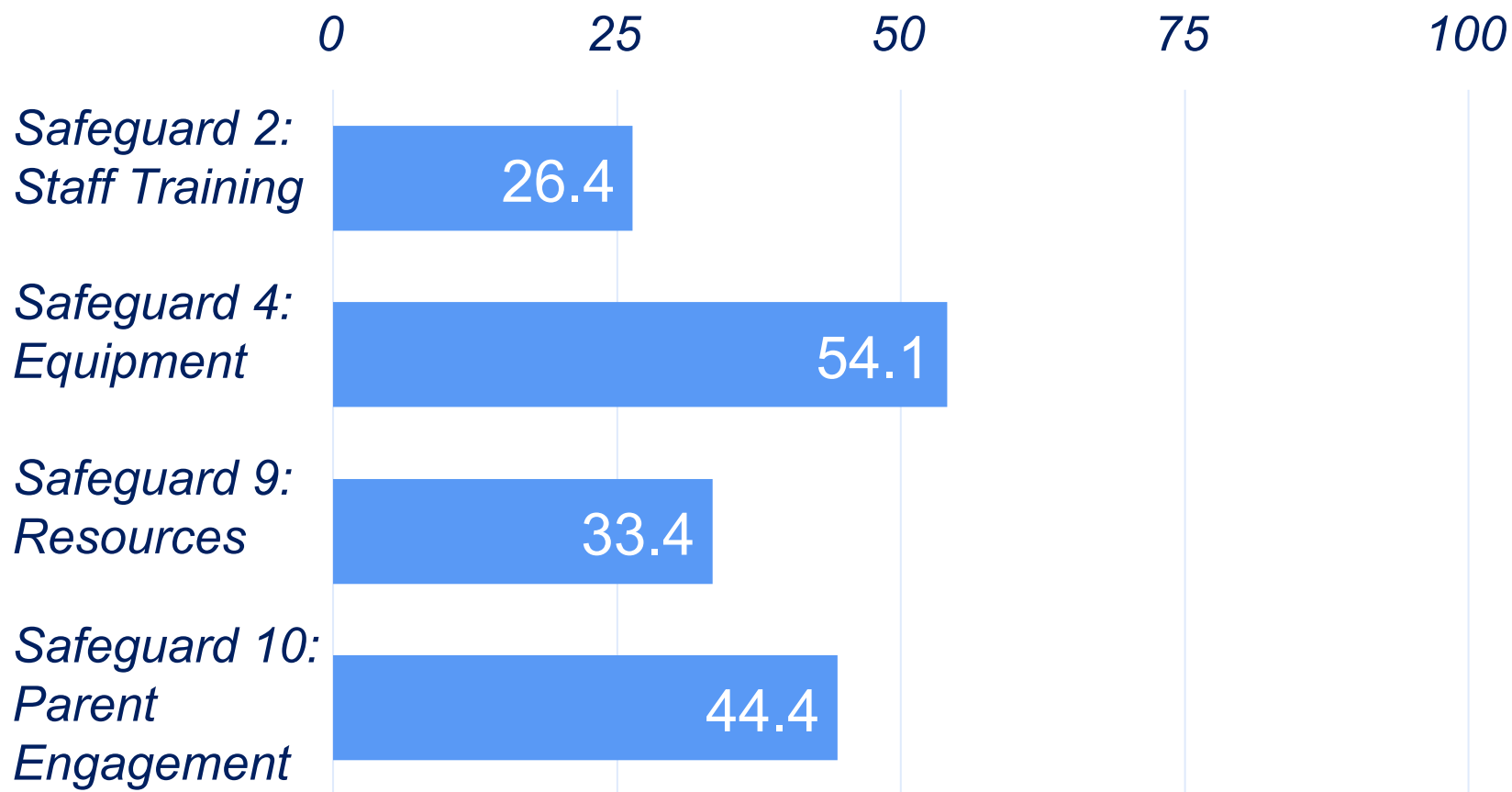


# BMI Screening and safeguard adoption?

Safeguard	SHPPS 2014 Questions (Health Services)
<b>Safeguard 2:</b> Staff Training	<ul style="list-style-type: none"><li>• School health coordinator has recent training related to weight management, eating disorders, measuring ht/wt, calculating BMI</li></ul>
<b>Safeguard 4:</b> Equipment	<ul style="list-style-type: none"><li>• Beam balance or electronic scale</li><li>• Stadiometer</li></ul>
<b>Safeguard 9:</b> Provide resources	<ul style="list-style-type: none"><li>• School offers on <i>or</i> off site counseling on nutrition and PA/PE</li><li>• School staff provide weight management services</li><li>• Staff provide identification/referral for ED (MS/HS)</li></ul>
<b>Safeguard 10:</b> Engage parents	<ul style="list-style-type: none"><li>• School notifies parents/guardians</li><li>• School provides referrals</li></ul>

# BMI Safeguards: Room for Improvement

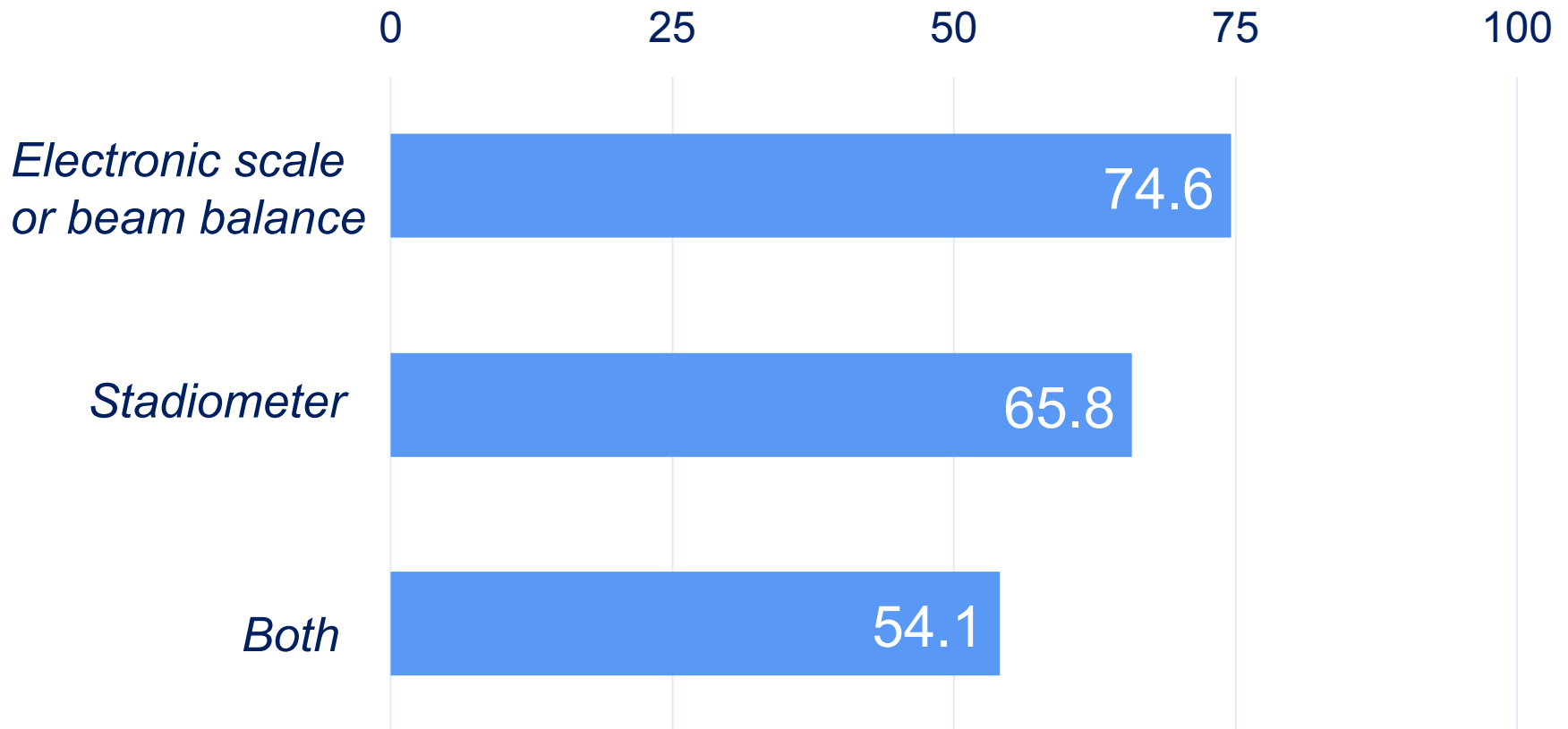
Safeguard adoption in schools that screen for BMI (N=223)



PRELIMINARY RESULTS—DO NOT DISTRIBUTE

# BMI Safeguards: A closer look

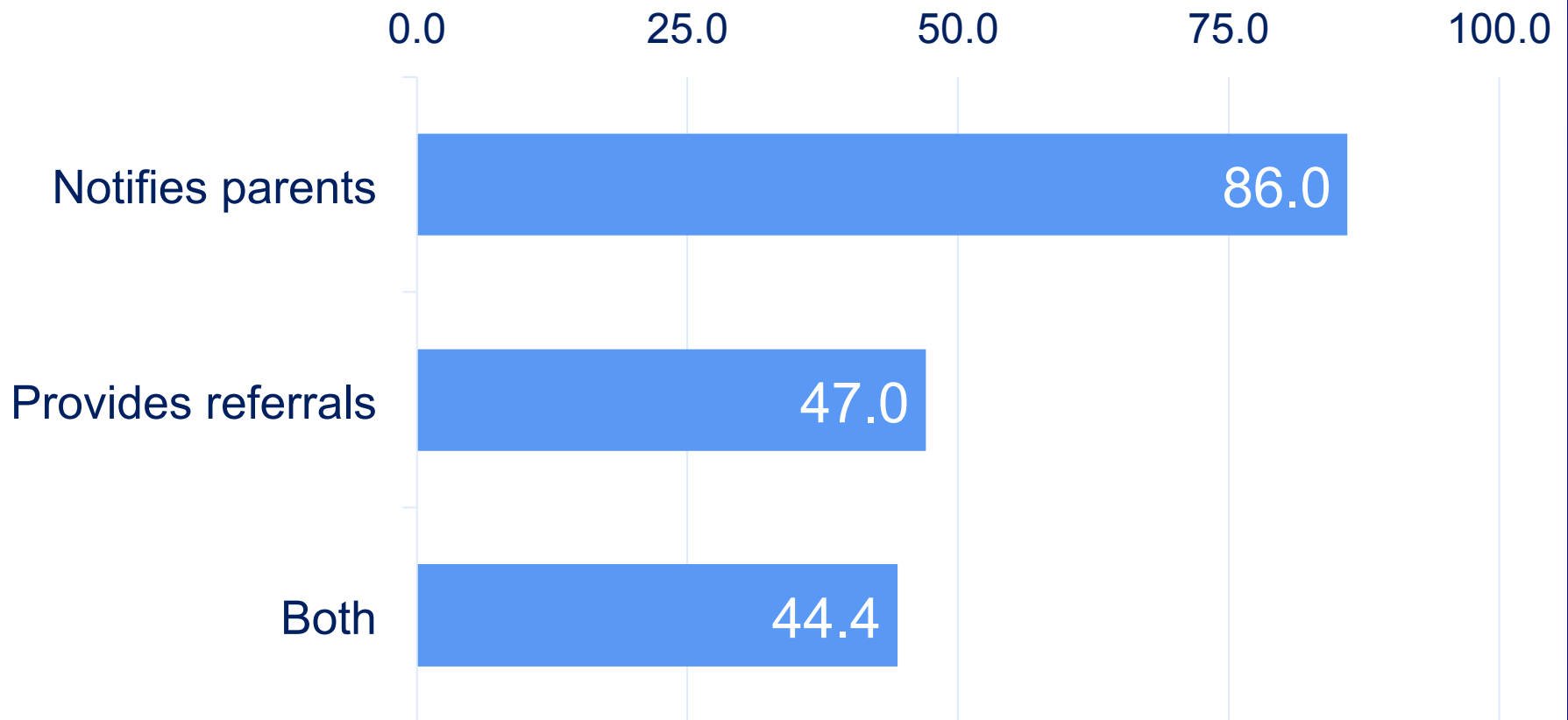
## Safeguard 4: Equipment



PRELIMINARY RESULTS—DO NOT DISTRIBUTE

# BMI Safeguards: A closer look

## Safeguard 10: Engage parents



PRELIMINARY RESULTS—DO NOT DISTRIBUTE

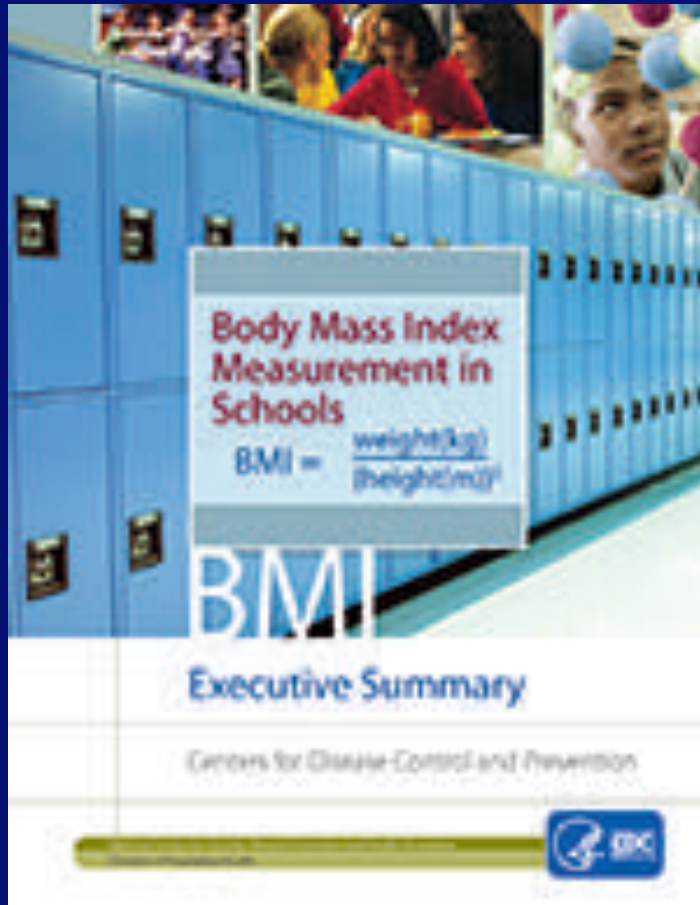
# Limitations

- No information about how results are communicated to parents—privacy, reading level, language used
- Generalizability to schools where BMI screening happens in PE/ via fitness testing
- Unable to look at associations between state policy and safeguard adoption

# Implications

- Safeguard adoption lags behind BMI screening implementation
- Staff training and reliable equipment are critical for obtaining accurate height and weight data.
- Potential to inform but not empower parents
- BMI measurement programs should complement and not compete with comprehensive evidence-informed programming to support school nutrition and PA/PE

# Next Steps



## Systematic Review

Synthesizing what we've learned over the past decade.



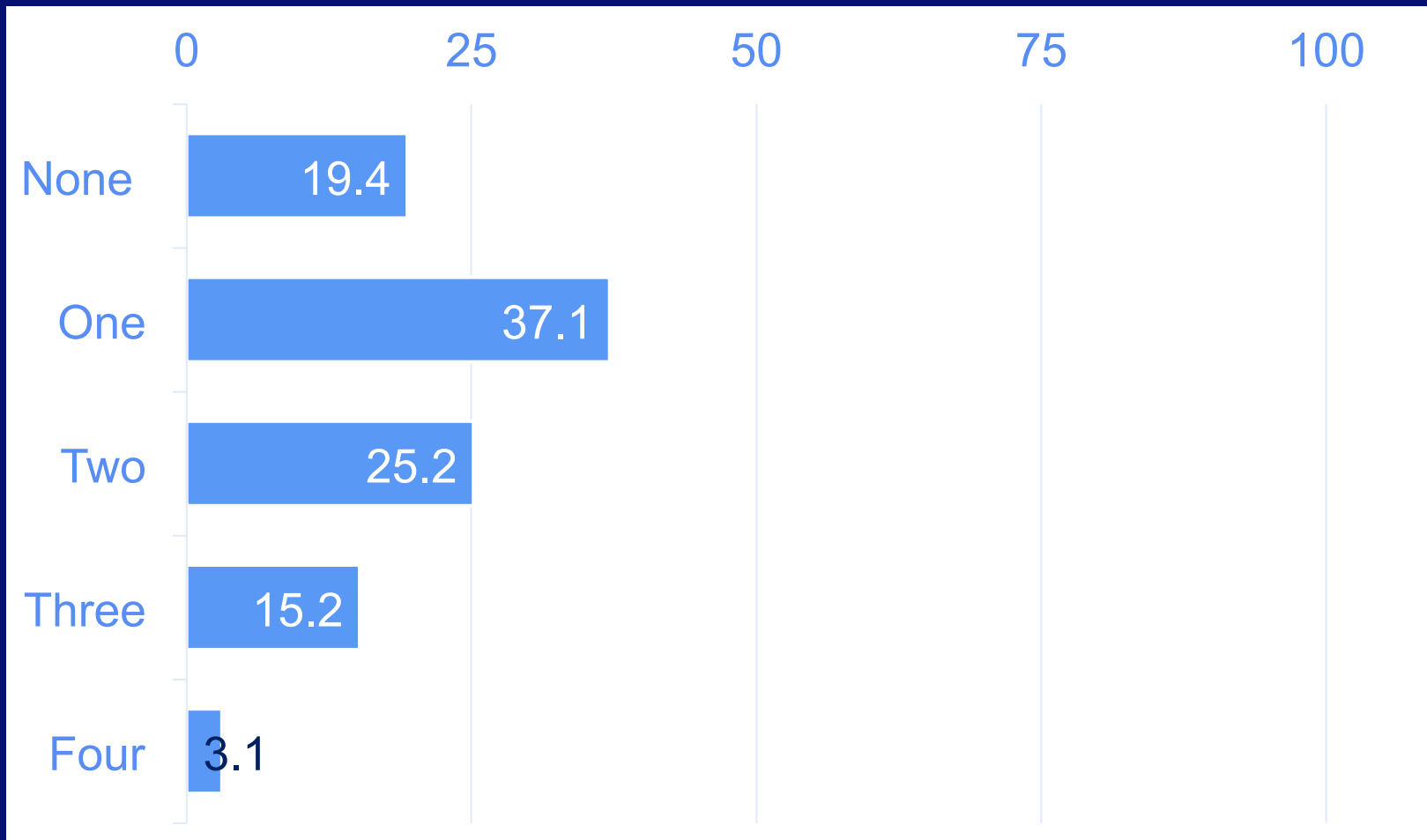
**Thank you!**

**Email: [ssliwa@cdc.gov](mailto:ssliwa@cdc.gov)**

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# Few schools have 4 safeguards



# BMI Screening and safeguard adoption?

## Safeguard SHPPS 2014 Questions (Health Services)

### Safeguard 2: Staff Training

- Weight management,
- ED identification/referral
- Accurate ht/wt measure
- Calculating BMI

Health services  
coordinator trained on  
topic in past 2 years

### Safeguard 4: Equipment

- Beam balance or electronic scale
- Stadiometer

### Safeguard 9: Provide resources

- On site or off site counseling on nutrition
- On site or off site counseling on PA
- School health services or mental health and social services staff provide wt mgmt. services
- Staff provide identification/referral for ED (MS/HS)

### Safeguard 10: Engage parents

- School notifies parents/guardians when BMI indicates potential problem
- School provides referrals to community health providers