Health Screening Mini-Session

BMI Screening

Carolina Clark, MD, MPH, Associate Medical Director

Outline

- Background & Epidemiology
- Guidelines for BMI Screening of Children and Adolescents
- Potential Benefits and Consequences of School-Based BMI Screening
- Discussion

Epidemiology & Background

For children and adolescents aged 2-19 years in 2017-2020:

- The prevalence of obesity was 19.7% and affected about 14.7 million children and adolescents.
- Childhood obesity is more common among certain populations

  Obesity prevalence by age:
  - 12.7% among 2- to 5-year-olds
  - 20.7% among 6- to 11-year-olds
  - 22.2% among 12- to 19-year-olds.

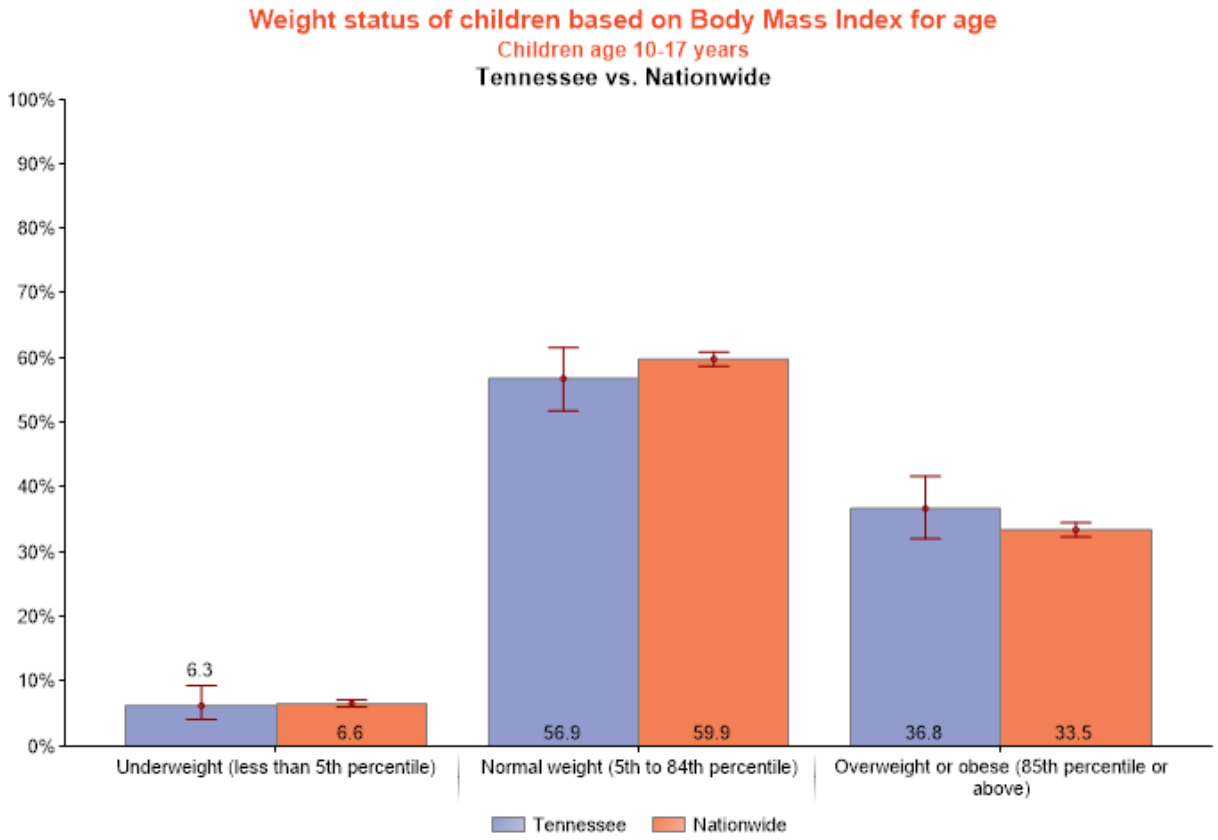
  Obesity prevalence by race/ethnicity:
  - 26.2% among Hispanic children
  - 24.8% among non-Hispanic Black children
  - 16.6% among non-Hispanic White children
  - 9.0% among non-Hispanic Asian children

  Obesity prevalence decreases as the head of household's level of education increases

- Obesity-related conditions include high blood pressure, high cholesterol, type 2 diabetes, breathing problems such as asthma and sleep apnea, and joint problems.

https://www.cdc.gov/obesity/data/childhood.html

Weight Status of Children based on BMI: TN vs. Nationwide



Data Source: National Survey of Children's Health, Health Resources and Services Administration, Maternal and Child Health Bureau. https://mchb.hrsa.gov/data/national-surveys

Citation: Child and Adolescent Health Measurement Initiative. 2020-2021 National Survey of Children's Health (NSCH) data query. Data Resource Center for Child and Adolescent Health supported by the U.S. Department of Health and Human Services, Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB). Retrieved [mm/dd/yy] from [www.childhealthdata.org].

https://mchb.hrsa.gov/data/national-surveys

Childhood Obesity and COVID-19

Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

Morbidity and Mortality Weekly Report (*MMWR*)

CDC

Longitudinal Trends in Body Mass Index Before and During the COVID-19 Pandemic Among Persons Aged 2–19 Years — United States, 2018–2020

Weekly / September 17, 2021 / 70(37);1278–1283

Please note: *This report has been corrected. An erratum has been published.*

Samantha J. Lange, MPH[1]; Lyudmyla Kompaniyets, PhD[1]; David S. Freedman, PhD[1]; Emily M. Kraus, PhD[2]; Renee Porter; DNP[3]; Heidi M. Blanck, PhD[1]; Alyson B. Goodman, MD[1] (VIEW AUTHOR AFFILIATIONS)

View suggested citation

Summary

What is already known about this topic?

The COVID-19 pandemic led to school closures, disrupted routines, increased stress, and less opportunity for physical activity and proper nutrition, leading to weight gain among children and adolescents.

What is added by this report?

Among a cohort of 432,302 persons aged 2–19 years, the rate of body mass index (BMI) increase approximately doubled during the pandemic compared to a prepandemic period. Persons with prepandemic overweight or obesity and younger school-aged children experienced the largest increases.

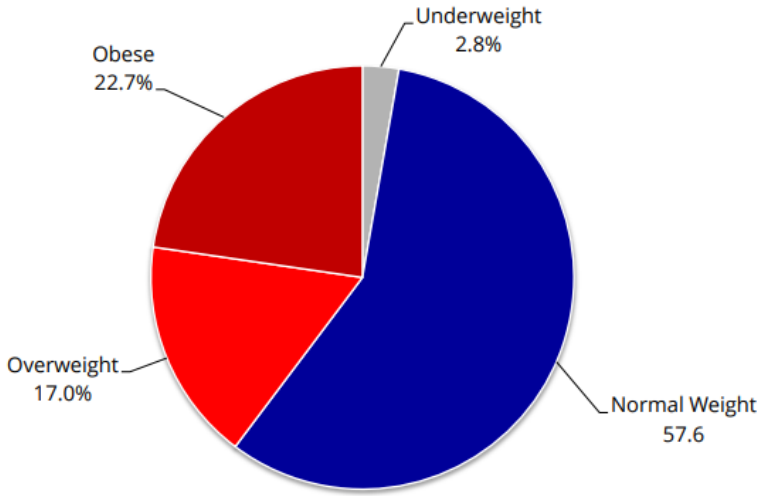
What are the implications for public health practice?

BMI Measurement in Schools

There are 2 main types of BMI measurement programs that serve a specific purpose:

1. Surveillance
2. Screening

Figure 1. Body Weight Status
Assessed Students, Tennessee Public Schools, 2019-20



Data Source: Body Mass Index Data, 2007-08 to 2019-20, Tennessee Department of Education, Nashville, Tennessee.

https://www.cdc.gov/healthyschools/obesity/bmi/bmi_measurement_schools.htm

BMI Measurement in Schools

- CDC does not recommend for or against BMI screening in schools
- CDC recommends that schools have 10 safeguards in place
  - Safeguards 1-8: Relevant for both screening and surveillance programs
  - Safeguards 9-10: Additional safeguards related to informing parents

https://www.cdc.gov/healthyschools/obesity/bmi/bmi_measurement_schools.htm

BMI Measurement Program Safeguards

- Safeguard 1. Introduce the program to parents, guardians, students, and school staff; ensure that there is an appropriate process in place for obtaining parental consent for measuring students' height and weight.
- Safeguard 2. 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. Ensure that the setting for data collection is private.
- Safeguard 4. Use equipment that can accurately and reliably measure height and weight.
- Safeguard 5. Ensure that the BMI number is calculated and interpreted correctly.
- Safeguard 6. Develop efficient data collection procedures.
- Safeguard 7. Do not use the actual BMI-for-age percentiles of the students as a basis for evaluating student or teacher performance (e.g., in physical education or health education class).
- Safeguard 8. Evaluate the BMI measurement program by assessing the process, intended outcomes, and unintended consequences of the program.
- Safeguard 9. Ensure that resources are available for safe and effective follow-up.
- Safeguard 10. Provide all parents with a clear and respectful explanation of the BMI results and a list of appropriate follow-up actions

https://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/tool_for_schools.html

BMI Measurement Program Safeguards

- **Safeguard 1.** *Introduce the program to parents, guardians, students, and school staff; ensure that there is an appropriate process in place for obtaining parental consent for measuring students' height and weight.*
  - Provide a clear description of the program to minimize confusion and anxiety.
  - Focus on the health implications of obesity, overweight, and underweight; make it clear that the school will be measuring weight out of concern for a student's health, not their appearance or a desire to criticize parenting practices.
  - Assure parents and students that the screening results will remain confidential.
  - Inform parents/caregivers of the purposes and logistics of height and weight measurement and the school's policy on sharing results.

https://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/tool_for_schools.html

BMI Measurement Program Safeguards

- **Safeguard 2.** *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.*
  - Implement quality control checks
  - Take each measurement twice. If the two measurements do not agree within one-fourth of a pound for weight (0.25 lb) or one-fourth of an inch for height (0.25”), then two additional measures can be taken until there is agreement.
  - Provide training on how to measure height and weight in a sensitive and caring manner
  - Be prepared to respond to questions or comments by students

https://www.cdc.gov/healthyschools/obesity/bmi/bmi_measurement_schools.htm

BMI Measurement Program Safeguards

- **Safeguard 3.** *Ensure that the setting for data collection is private*
  - Person conducting the measurement is the only person who can see the results
  - De-identify the BMI measurement as soon as record keeping is complete

https://www.cdc.gov/healthyschools/obesity/bmi/bmi_measurement_schools.htm

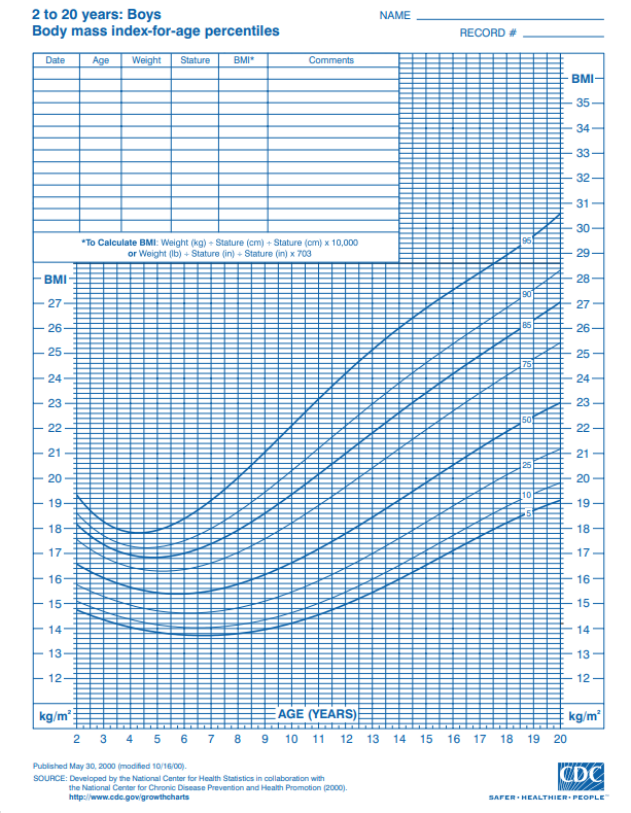
BMI Measurement Program Safeguards

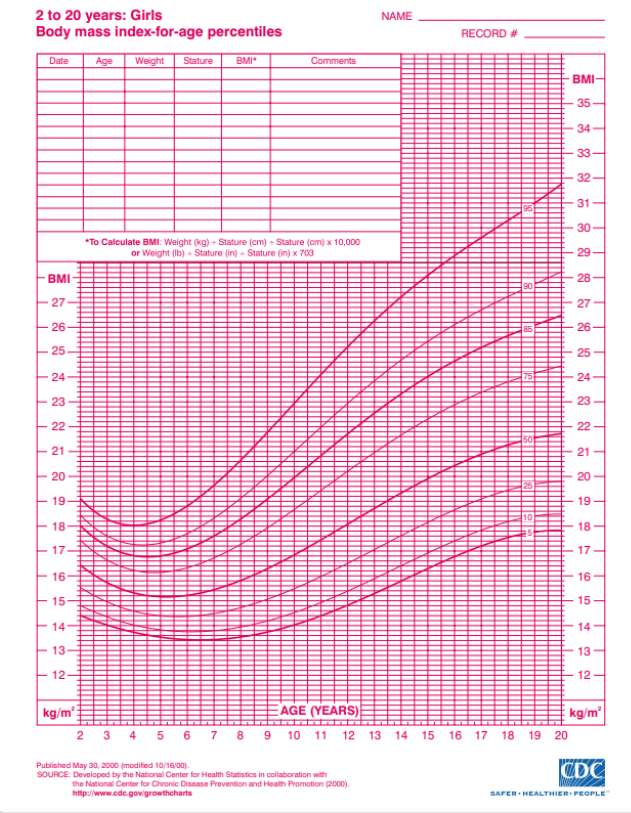
- **Safeguard 4.** *Use equipment that can accurately and reliably measure height and weight*
  - Preferred equipment to assess students' weight: electronic or beam balance scale that is properly calibrated to the nearest one-fourth pound
  - Preferred equipment to assess height: stadiometer, a wall-mounted or portable unit solely designed to measure height to the nearest one-eighth inch

https://www.cdc.gov/healthyschools/obesity/bmi/bmi_measurement_schools.htm

BMI Measurement Program Safeguards

- **Safeguard 5.** *Ensure that the BMI number is calculated and interpreted correctly.*
  English formula for calculating BMI is {Weight (lb) ÷ [Height (in)]^2} × 703
  Use the CDC growth charts to calculate BMI-for-age





https://www.cdc.gov/healthyschools/obesity/bmi/bmi_measurement_schools.htm

BMI Measurement Program Safeguards

- **Safeguard 6.** *Develop efficient data collection procedures.*
  - Coordinate data collection times with school administrators and employ a sufficient number of staff members to minimize disruptions to class time
  - Use CDC's BMI Tool for Schools, an excel spreadsheet that can compute up to 2000 BMI and BMI percentiles and provide a summary of students' BMI-for-age categories and graphs for the prevalence of overweight and obesity.

Example of Measurements Tab:

ID (optional)	Name (optional)	Sex	Date of birth	Date of measurement	Height		Weight	BMI	BMI %ile
					Feet	Inches	Pounds		
1	Jane Doe	F	4/27/1998	10/1/2007	4	10.25	83.5	17.3	63.0
2	Carlos Rodriguez	M	3/7/1998	10/1/2007	4	7.375	127	29.1	99.2
3		F	6/2/1998	10/1/2007	4	5.125	64	15.9	39.9
4	John Smith	M	6/2/1998	10/1/2007	4	8.375	67.5	14.9	19.1
5		F	6/11/1998	10/1/2007	4	3.25	76.75	20.5	90.8
6		F	9/5/1997	10/1/2007	4	9.25	79.75	17.1	53.7
7		F	6/23/1998	10/1/2007	4	11.125	80.5	16.2	45.3
8		F	4/24/1998	10/1/2007	4	7	85.5	19.9	87.3
9		M	8/16/1998	10/1/2007	4	6.375	64.5	15.3	29.7
10		M	5/14/1997	10/1/2007	4	9.125	79	17.0	53.5
		M	11/7/1997	10/1/2007	4	9.375			
		M	12/28/1997	10/2/2007	4	5.375	67	16.5	50.5
		F	1/10/1999	10/2/2007	4	5.125	62.25	15.5	36.6
		F	11/22/1997	10/2/2007	4	9.125	106.5	22.9	95.2
		F	1/24/1998	10/2/2007	4	9.25	1311.25		Ht or wt error
		M	2/10/1997	10/2/2007	5	0.25	144.5	28.0	98.6
		M	9/14/1997	10/2/2007	4	9.125	97.5	21.0	92.2
		M	8/24/1997	10/2/2007	4	11.375	100.5	20.0	88.3
		M	10/8/1997	10/2/2007	5		69.5	13.6	1.1
		M	7/13/1997	10/2/2007	5	2	101.75	18.6	77.4
		F	11/12/1996	10/2/2007	4	9.375	113.5	24.2	95.3
		F	12/12/1996	10/2/2007	4	9.125	76.25	16.4	34.5
		x	3/20/1996	10/3/2007	4	11.375	106	21.1	Sex error
		M	4/8/1997	10/3/2007	5	0.125	88.5	17.2	55.9
		M	4/8/1997	10/3/2007	4	11.375	91.5	18.2	71.4
		M		10/3/2007	4	8.25	65	14.4	Age error
		F	6/4/1997	10/3/2007	4	10.125	75	15.6	24.4
		F	2/7/1997	10/3/2007	4	8.125	76.5	17.1	47.3
		F	7/28/1997	10/3/2007	4	3.125	53.25	14.3	7.0
		M	6/22/1997	10/3/2007	5	2.125	100.5	18.3	73.7
		M	3/24/1997	10/3/2007	5	0.375	121.75	23.6	96.1

https://www.cdc.gov/healthyschools/obesity/bmi/bmi_measurement_schools.htm

BMI Measurement Program Safeguards

- **Safeguard 7.** *Do not use the actual BMI-for-age percentiles of the students as a basis for evaluating student or teacher performance (e.g., in physical education or health education class)*

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BMI Measurement Program Safeguards

- **Safeguard 9.** *Ensure that resources are available for safe and effective follow-up*
  - Schools: Work with the local medical community to ensure that adequate diagnostic and treatment services are available; identify school- or community-based health promotion programs that encourage physical activity and healthy eating
  - School Nurses: Be equipped with the appropriate resources to respond to parents requesting guidance
  - School Health Personnel: Establish systematic processes and criteria for referring students to external medical care providers.
  - School staff: Receive guidance on how to recognize early signs of health risks that require urgent attention such as hunger or eating disorders.

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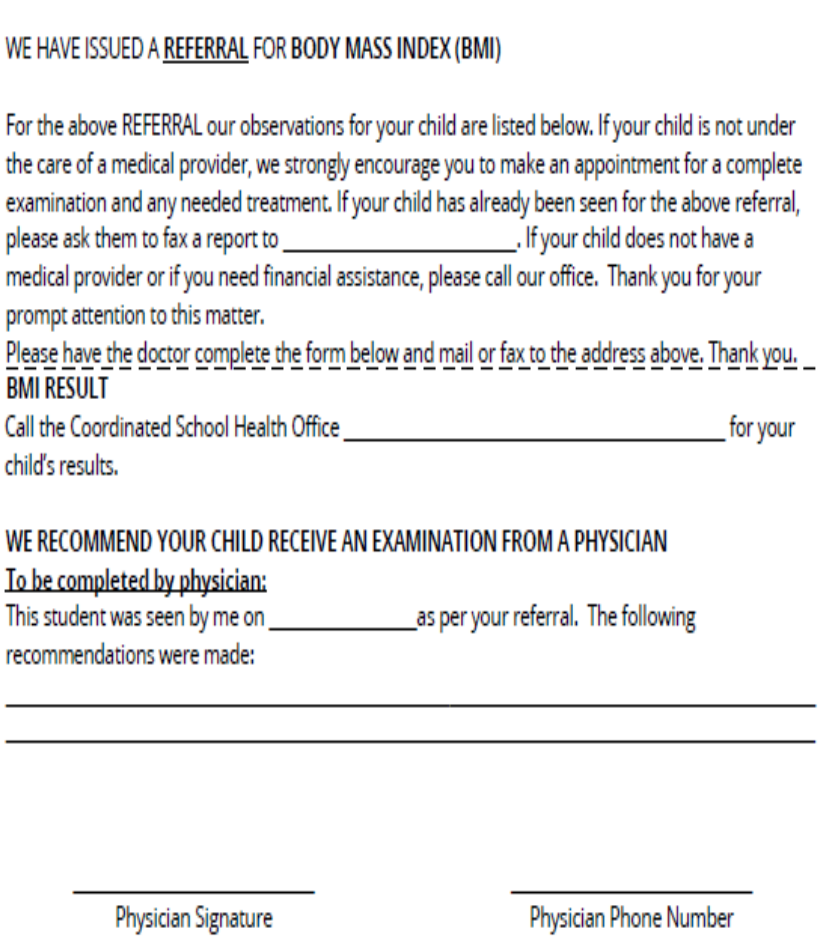
BMI Measurement Program Safeguards

- **Safeguard 10.** *Provide all parents with a clear and respectful explanation of the BMI results and a list of appropriate follow-up actions.*
  - Student BMI results can be sent to parents by secure means, such as by mail, and not brought home by students. To reduce the risk of stigmatizing students, letters can be sent to all parents.
  - Avoid definitive statements about the student's weight category
  - Strongly encourage parents to consult a health care provider to determine if the student's weight presents a health risk
  - Include evidence-based information and practical tips designed to promote physical activity and a healthy diet



WE HAVE ISSUED A REFERRAL FOR BODY MASS INDEX (BMI)

For the above REFERRAL our observations for your child are listed below. If your child is not under the care of a medical provider, we strongly encourage you to make an appointment for a complete examination and any needed treatment. If your child has already been seen for the above referral, please ask them to fax a report to _____. If your child does not have a medical provider or if you need financial assistance, please call our office. Thank you for your prompt attention to this matter.

Please have the doctor complete the form below and mail or fax to the address above. Thank you.

BMI RESULT

Call the Coordinated School Health Office _____ for your child's results.

WE RECOMMEND YOUR CHILD RECEIVE AN EXAMINATION FROM A PHYSICIAN

To be completed by physician:

This student was seen by me on _____as per your referral. The following recommendations were made:

_____

_____

_____ Physician Signature

_____ Physician Phone Number

https://www.cdc.gov/healthyschools/obesity/bmi/bmi_measurement_schools.htm

Potential Benefits and Consequences of School-Based BMI Screening

Potential Benefits:

- School-based BMI measurement can be a useful tool to identify children who require further evaluation
- School-based BMI screening can identify those at greatest risk for obesity, such as children from low-income and minority groups
- School-based BMI screening programs can identify children with limited access to medical care

Potential Consequences or Limitations:

- Potential increased stigma attached to obesity
- Potential increase in pressure to engage in unsafe weight control behaviors
- Increased cost to schools

Thank you!

Please reach out with any questions!

Carolina Clark, MD, MPH
Associate Medical Director, Pediatrics
carolina.clark@tn.gov