Chapter 6: Height and Weight Assessment

Policy Recommendations
The school corporation will use an evidence-based assessment tool to track the collective health of students over time by collecting data such as body composition (height and weight), aerobic capacity, and/or muscular strength, endurance, and flexibility.

Rationale for Policy Recommendations
• Schools can use students’ heights and weights as surveillance data to obtain a better understanding of the health of their entire student population. Other schools collect height and weight data as a screening tool to ensure a child is developing in a healthy way.

• School professionals can use the aggregate Body Mass Index (BMI) data of the student population to create policies and programs that promote healthy eating and active living in the school community.

• Health and physical education classes and teachers provide the opportunity for incorporating height and weight assessments into the school day and for turning it into a learning experience.

• Schools have a history of providing health-related assessments, including vision, hearing, and scoliosis.

• School nurses can assist in the early identification of health risk, especially for children who do not have a health care provider or health insurance.

• Height, weight, and BMI measurements can encourage discussions between families and health care providers about their children’s growth and development.

Tools included in this chapter:
What’s the Difference between BMI Screening and BMI Surveillance?
Deciding between BMI Surveillance or BMI Screening
Guidelines for Measuring Height and Weight
Safeguard Checklist
Pre-Screening Notification to School Faculty and Staff
Pre-Screening Notice to Parents
Pre-Surveillance Notice to Parents
Screening Results for Parents
Surveillance Results for Parents
How to Use BMI Data to Create Healthy Policies and Practices in Schools
What's the Difference between BMI Screening and BMI Surveillance?

Although the terms "screening" and "surveillance" are often used interchangeably, they have two very different meanings and require two different courses of action.

**BMI Screening**

- **Purpose**: Identifies individuals who are at risk of complications due to underweight, overweight, and obesity.
- **Purpose**: To assess the weight status of individual students to detect those who are at risk for weight-related health problems and refer them for assistance.

**Benefits**: Screening results can
- Correct parent/guardian and child misconceptions about the child's weight status
- Provide parents/guardians and children with the opportunity to learn about healthy lifestyle behaviors
- Refer children at risk of complications due to underweight, overweight, and obesity to appropriate resources for treatment

**Concerns**:
- Screening programs should occur only when there is an effective means for referral and treatment
- Screening programs can be controversial because they involve the sharing of personal information
- It is possible students might experience:
  - Intensified stigmatization
  - Increased dissatisfaction with body image
  - Intensified pressure to engage in harmful weight-loss practices that could lead to eating disorders
- Parents/Guardians might respond negatively to BMI reports by, for example, placing their children on a restrictive and potentially harmful diet without seeking medical advice

**Data Uses**: Schools can use BMI screening data to
- Motivate parents/guardians and their children to make healthy and safe lifestyle changes
- Motivate parents/guardians to take children who are not at a healthy weight to health care providers for further evaluation and, if needed, guidance and treatment
- Increase awareness of school administrators and school staff of the importance of addressing obesity
BMI Surveillance

**BMI Surveillance**—The systematic collection, analysis, and interpretation of data from a census or representative sample

**Purpose**
To identify the percentage of students in the population who are obese, overweight, healthy weight, and underweight

**Benefits:**
- The use of BMI measurement for surveillance purposes has been endorsed by the American Public Health Association, the American Heart Association, and the Institutes of Medicine
- Surveillance programs are less controversial than screening programs because they do not involve the sharing of sensitive, personal information
- Requires less staff time and financial resources as there is no direct follow-up communication with parents/guardians
- Does not require an effective means for referral and treatment

**Concerns:**
- Identifies children at risk for complications but does not provide a means of follow-up support and treatment
- Misses an opportunity to improve parent/guardian and child perceptions regarding the child's weight status

**Data Uses: Schools can use BMI surveillance data to**
- Describe trends in weight status over time
- Create awareness among school and health personnel, community members, and policy-makers of the extent of obesity among the youth they serve
- Provide an impetus to improve policies, practices, and services to prevent and treat obesity among youth
- Monitor the effects of school-based physical activity and nutrition programs and policies on children's health
Deciding between BMI Screening or BMI Surveillance

As you begin to plan your height and weight collections, this tool will help you decide if you should be doing BMI screening or BMI surveillance.

Does your school corporation have a policy regarding height and weight measurement and reporting?

- Yes
  - Follow school policy
- No
  - Will you be collecting measurements that could be identified to a specific student?
    - Yes
      - How will you be sharing the measurement results?
        - Individual student results will be shared with parents/guardians.
        - Both individual and aggregate results will be shared.
        - Only the aggregate results of the entire student population will be shared.
    - No
      - Would you think differently?

(Signed)

Diagram developed by the Indiana State Department of Health
Guidelines for Measuring Height and Weight

When performing height and weight measurements, it is important to follow a strict set of established guidelines. Conducting all measurements in a safe, standard manner minimizes any potential risk to students and ensures that the data are valid, reliable, and can be compared to measurements collected in future years.

Steps to Determine BMI in School Children

1. **Ensure the height and weight measurement program has the support of school administrators and follows all school policies.**

2. **Determine the measurement setting.** Often height and weight measurements (heights and weights) are collected during physical education class. This setting has several advantages including: a) the scales and stadiometers (height boards) are often located in gymnasiums; b) gymnasiums are generally large enough to ensure that measurements are private; and c) BMI data are often used as part of a physical fitness health report that is generated by the physical education instructors. Alternatively, screening can be conducted more rapidly by measuring children’s heights and weights by class throughout the day.

3. **Obtain the equipment.**
   a. **Scales.** Use only high quality, medical-grade, beam balance or electronic scales. These scales should be calibrated (“zeroed”) often and periodically serviced. Electronic scales are generally more costly, but they allow faster weighing. Do not use home bathroom scales, as these are unreliable.
   b. **Stadiometers.** Stadiometers can be either portable or wall mounted. The stadiometer should be stable and checked for accuracy after mounting. If heights are to be measured annually, permanent wall-mounted stadiometers are recommended. Height rods attached to scales do not provide reliable measurements.

4. **Determine the data collection form.** The data collection form should include fields to collect the following variables: Date of measurement, birth date, sex, height, and weight. Optional fields could include student ID number and name.

5. **Identify the personnel who will collect the heights and weights.** School personnel may want to consider using trained volunteers to assist in collecting the heights and weights. These volunteers should be trained in the measurement procedures, the importance of maintaining confidentiality, and the need to allow students to opt out without penalty or shame.

a. Recording the student's date of birth and date of measurement.
   This information is used to accurately calculate the age of the child to the nearest month. The birth date is often available on master lists for classes.

b. Measuring heights
   • Use stadiometers only.
   • Remove the student's shoes and hair accessories prior to height measurements.
   • Have the student stand against the stadiometer with heels together, legs straight, arms at sides, and looking straight ahead.
   • Place the stadiometer headpiece so it touches the crown of the child's head.
   • Read the measurement with measurer's eye parallel with the headpiece.
   • Use either metric or English units.
   • Read to the nearest .1 cm or 1/8 inch.
   • Repeat until two measurements agree within 1 cm or ¼ inch (the tolerance limit) and record the average of the two. It is important to take two measurements to assure accuracy in BMI calculations.
   • If unable to obtain an accurate measurement or to obtain measurements within the tolerance limit, document this on data entry form including reason. It is recommended to not include this measurement in aggregate reporting.

c. Weighing
   • Set up the balance beam or electronic scale in a location that ensures privacy.
   • Have the student remove his/her shoes.
   • Have the student stand in the center of the platform.
   • Use either metric or English units. Because the metric system is less familiar to most children and adolescents than English units, recording weights in metric may help lessen the student's personal discomfort associated with being weighed.
   • Read to nearest .01 kg or ½ oz.
   • Repeat until two weights agree within .1 kg or ¼ lb (the tolerance limit) and record the average of the two. It is important to take two measurements to assure accuracy in BMI calculations.
   • If unable to obtain an accurate measurement or to obtain measurements within the tolerance limit, document this on data entry form including reason. It is recommended to not include this measurement in aggregate reporting.
7. Data entry and analysis

a. **BMI calculation.** In metric, BMI is calculated as: weight in kilograms / (height in meters)$^2$. In pounds and inches, it is calculated as: [weight in pounds / (height in inches)$^2$] x 703.

b. **BMI-for-age percentile calculation.** For children and teens, BMI is age- and sex-specific and is often referred to as BMI-for-age. After BMI is calculated for children and teens, it can be compared with Centers for Disease Control and Prevention (CDC) reference data to obtain a percentile ranking. Percentiles can be used to assess the size and growth patterns of individual children in the United States. The percentile indicates the relative position of the child’s BMI number among children of the same sex and age. These can be summarized in the categories shown in the chart below.

BMI calculation errors can be minimized by using charts or automated calculations. The following link calculates BMI-for-age percentiles: [http://apps.nccd.cdc.gov/dnpabmi/Calculator.aspx](http://apps.nccd.cdc.gov/dnpabmi/Calculator.aspx). Details regarding calculating and interpreting BMI can also be found at: [www.cdc.gov/nccdphp/dnpa/bmi/childrens_BMI/about_childrens_BMI.htm](http://www.cdc.gov/nccdphp/dnpa/bmi/childrens_BMI/about_childrens_BMI.htm).

<table>
<thead>
<tr>
<th>Weight Status Category</th>
<th>Percentile Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight</td>
<td>Less than the 5th percentile</td>
</tr>
<tr>
<td>Healthy Weight</td>
<td>5th percentile up to the 85th percentile</td>
</tr>
<tr>
<td>Overweight</td>
<td>85th up to the 95th percentile</td>
</tr>
<tr>
<td>Obesity</td>
<td>Equal to or greater than the 95th percentile</td>
</tr>
</tbody>
</table>


c. **Computer programs for data entry and BMI calculations.** Height and weight data can be entered into a standard spreadsheet, such as Excel, for BMI calculation. Alternatively, specialized computer programs, such as FITNESSGRAM, often used by physical education instructors; Skyward, often used for student record administration; NutStat, part of CDC’s Epi Info program; or SPHERE, used by public health nurses, can be used for direct entry and BMI calculation and, in most cases, BMI-for-age percentile calculations.

d. **Data analysis.** Whether you want to follow individual children or get a broader picture of the BMI status of your school-age population may affect the desired system to use to record heights and weights.
Safeguard Checklist

For some students, being weighed and measured can be a stressful experience. When done carelessly or without respect for student privacy, height and weight measurements could lead to stigmatization, embarrassment and poor body image. Establishing basic safeguards can help ensure a positive experience for students.

Before engaging in any height and weight measurements, make sure these basic safeguards are in place:

- Weighing and measuring will occur in private
- Measurement location is outside of hearing range of other people
- Measurement location is out of sight of other people
- Students are weighed and measured facing away from the scale
- Measurement results are kept confidential
- Measurement results are not shared with the student, unless the student specifically requests
- Personnel conducting the measurements do not comment on the student's height and/or weight
Dear Faculty and Staff:

The purpose of this letter is to inform you about our student growth assessment program. You, along with students, parents/guardians, and the community, can help make this program a success.

Our school corporation will be collecting the height and weight measurements of students in grades [insert grades]. These measurements will be used to calculate Body Mass Index (BMI). BMI is a “weight for height for age” index that can be a useful tool in the early identification of possible health risk factors among children.

The results of the BMI assessment will be kept confidential. Because students may react in a variety of ways to having their height and weight measured, it is important that you are aware that this assessment is taking place so that you can respond appropriately. For example, if a child makes a negative comment about his/her body, a sensitive response might be, “People come in all different sizes and shapes.” You can help by being objective and open about your students’ concerns about their heights and weights in your responses.

The height and weight measurements will be conducted on:

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Location</th>
<th>Grade(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This is an opportunity for our schools to coordinate efforts to communicate with students, parents/guardians, and the community about the positive steps our schools are taking to support healthy eating and physical activity. Currently, we provide [insert programs that are coordinated with the school corporation and/or school to encourage healthy eating and physical activity for both students and staff] and are planning [insert information about the positive things you would like to start at your school (e.g., school health council, parent presentation, physical education programs, or health education classes)].

Please take a moment to stop by my office or send an email to me if you have any questions about this screening program, or if you would like to be part of our schools’ efforts to create a healthier environment. Together, we can make a real difference in the health and wellness of our students!

Thank you for your time and consideration.

Sincerely,
(School Letterhead)

Pre-Screening Notice to Parents

(Date)

Dear Parent or Guardian:

[School or school corporation name] is gearing up to measure the height, weight, and Body Mass Index (BMI) of all children in grades [grade levels] to monitor their growth and development. The purpose of this student growth assessment is to provide information about your child’s weight status and ideas for living a healthy lifestyle.

The [school nurse, physical education teacher, etc.] will do the measurement on [date].

[School staff person] will direct your child’s screening and will make sure your child’s privacy is respected at all times. The results of your child’s height, weight, and BMI measurements will remain strictly confidential—the results will be kept in your child’s school health record and given to you directly by [state what form of direct communication will be used]. The results will NOT be sent home with your child.

Like a blood pressure reading or an eye screening test, a BMI can serve as a useful tool in identifying possible health risks. Being either overweight or underweight can put a person at risk for certain health problems. A student who is overweight has a higher risk of developing serious chronic diseases, including diabetes, heart disease, high blood pressure, stroke, and certain cancers. A student who is underweight has a higher risk for heart problems, loss of bone mass, and anemia. Underweight may also be a sign of an underlying eating disorder.

A BMI does not tell the whole story about your child’s health status. BMI does not distinguish between fat and muscle. For example, if a child is very athletic and has a lot of muscle, his or her BMI may be high even though he or she is not overweight. That’s why we encourage you to share the results with your child’s health care provider. Your child’s doctor or nurse is in the best position to evaluate his or her overall health and can explain the results of his or her BMI screening. They can also talk with you about whether there are steps you can take to encourage healthy eating and physical activity.

Body weight and type are sometimes issues of extreme sensitivity for students and families. If you do not want your child to participate, please contact [name, role, and phone number].

Additional questions can be directed to [name, role, and phone number].

Sincerely,
Pre-Surveillance Notice to Parents

(School Letterhead)

(Date)

Dear Parent or Guardian:

[School or school corporation name] is gearing up to measure the height, weight, and Body Mass Index (BMI) of all children in grades [grade levels]. The purpose of this student growth assessment is to assess the need to improve the nutrition and physical activity practices of the school and/or community and to better understand if our efforts are improving the health of students. Being overweight can put a person at risk for certain health problems, including diabetes, heart conditions, and stroke. Being underweight can increase a person's risk for heart problems and may be a sign of an underlying eating disorder.

The [school nurse, physical education teacher, etc.] will do the measurement on [date].

[School staff person] will supervise all measurements and will make sure your child's privacy is respected at all times. Your child's height, weight, and BMI measurements will remain strictly confidential. No individual student's results will be reported unless requested by the parent/guardian. Any reporting of BMI data will be done as a total of the entire student population.

Body weight and type are sometimes issues of extreme sensitivity for students and families. If you do not want your child to participate, please contact [name, role, and phone number].

Additional questions can be directed to [name, role, and phone number].

Sincerely,
Screening Results for Parents

(School Letterhead)

(Date)

Dear Parent or Guardian:

Your child, [insert name of student], was measured for height and weight to determine how he/she is growing. A Body Mass Index (BMI) for Age percentile was calculated. This is used as a guideline to help determine if a person may be overweight, underweight, or at a healthy weight.

Being either overweight or underweight can put a person at risk for certain health problems. A student who is overweight has a higher risk of developing serious chronic diseases, including diabetes, heart disease, high blood pressure, stroke, and certain cancers. A student who is underweight has an increased risk for heart problems, loss of bone mass, and anemia. Underweight may also be a sign of an underlying eating disorder.

Your child’s results were:

Measurement Date:
Height: ______ ft. ______ in.   Weight: ______ lbs.   BMI Percentile: ______   Weight Category: ______________

Healthy Weight

- Underweight - less than the 5th percentile
- Healthy Weight - 5th percentile to less than the 85th percentile
- Overweight - 85th percentile to less than the 95th percentile
- Obese - 95th percentile or greater

What should you do? Please share the results of this health screening with your child’s health care provider. BMI should be considered a screening tool and not a definitive measure of overweight, obesity, or underweight. The measure does have limitations. For example, some athletes and dancers may have a higher than expected BMI due to their increased muscle mass. Muscle mass weighs more than fat mass. Your child’s health care provider is the best person to evaluate whether or not your child’s measurements are within a healthy range. If your child does not have health insurance or a regular health care provider, please contact your local Covering Kids and Families of Indiana Coalition at www.ckfindiana.org or call the Family and Social Services Administration at 1 (800) 403-0864 for information about obtaining health insurance coverage or finding a provider.

Regardless of your child’s current weight status, you can support your child in developing healthy habits by encouraging him/her to eat healthy food, engage in at least 60 minutes of physical activity per day, and reduce “screen time” (television, computer, video games).

If you have any questions, please contact [name, role, and contact information].

Sincerely,
Surveillance Results for Parents

(School Letterhead)

(Date)

Dear Parent or Guardian:

On [date], [school or corporation name] measured the height, weight, and Body Mass Index (BMI) of students in grades [grade levels]. We appreciate your support in this effort.

Being either overweight or underweight can put a person at risk for certain health problems. A student who is overweight has a higher risk of developing serious chronic diseases, including diabetes, heart disease, high blood pressure, stroke, and certain cancers. A student who is underweight has a higher risk for heart problems, loss of bone mass, and anemia. Underweight may also be a sign of an underlying eating disorder.

After analyzing the BMIs of students, we found that [insight learned from the data].

[Graph of BMI data]

[school or corporation name] is committed to ensuring that our students are healthy and ready to learn. After considering the results of our BMI assessment, we are committed to starting new efforts that include:

- [New action regarding your school wellness policy]
- [New action regarding nutrition]
- [New action regarding physical activity]

We are also committed to continuing our current efforts of:

- [Current action regarding your school wellness policy]
- [Current action regarding nutrition]
- [Current action regarding physical activity]

If you would like more information about how you can be involved in our efforts to support healthy eating and active living, please contact [name, role, and contact information].

If you have any questions, please contact [name, role, and contact information].

Sincerely,
How to Use BMI Data to Create Healthy Policies and Practices in Schools

You have collected all of the students' height and weight measurements. Now, what do you do with the data? Measuring the students is just one step in the process. The real benefit of collecting students' heights, weights, and BMIs is using that data to create lasting changes in the functioning of the school system and to track progress in improving student health.

Here are some ideas for making the most out of your BMI data.

**Analyze it**
Student height and weight data do no good if the data just sit in a file on somebody’s computer. Measurements should be analyzed to calculate the proportion of students who are obese, overweight, at a healthy weight, and underweight. If your school is doing a screening program, the data should be analyzed to identify children who may have an unhealthy weight. The Centers for Disease Control and Prevention created the Children’s BMI Tool for Schools ([www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/tool_for_scho...](http://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/tool_for_scho...)) to assist schools in calculating student BMIs. The Tool also develops summaries and graphs of the aggregate BMI data.

**Share it**
In a surveillance program, the aggregate BMI data should be shared with school personnel, parents/guardians, and other community partners. In a screening program, individual student’s results should be shared with his or her parents/guardians. It is important to share the results of all children, regardless of weight status, because every family can benefit from the opportunity to learn more about achieving and maintaining a healthy weight. Aggregate results can also be shared as part of a screening program.

You may want to consider sharing your school’s or school corporation’s aggregate BMI assessment results with the media. It is highly likely that your BMI assessment results will show a high percentage of children at an unhealthy weight, which may not be very flattering to your school or student population. However, sharing the results with the media offers the chance to share the positive steps you are taking to create a healthy environment for students and to show your commitment to improving student health.
Use it to change school policies and practices
Data can be a powerful tool for justifying why specific changes need to be made to the school system’s policies and practices. The high percentage of students who are overweight and obese that will likely be identified through the assessment could help school administrators and decision-makers to understand the need for providing a healthy school environment. If you are looking for specific policies and practices to improve based on BMI data, your School Wellness Policy would be a great place to start.

Incorporate it into lesson plans
The process of measuring, analyzing, and reporting height, weight, and BMI can be incorporated into lesson plans. The measuring and reporting lend themselves to lessons on fractions, percents, decimals, and equations. Achieving and maintaining a healthy weight through proper nutrition and physical activity is an excellent topic for physical education and health education classes. Discussions on weight status can be incorporated into lessons on self-acceptance and anti-bullying.

Use it to track progress over time
When done year after year, student BMI data can show improvements in student health that might have resulted from the improved policies and practices that have been implemented in your school or school system. There are two ways to track progress over time: 1) Follow cohorts of students as they age through the school system, or 2) Measure the same grades of students every year, such as 1st, 6th, and 12th graders. With several years of data, you can answer some very interesting questions, “Are our efforts leading to improvements in students’ weight status? Do students tend to have healthier or less healthy BMIs as they age through the school system? Is there a specific grade where health efforts should be targeted?”
Resources

- Indiana Healthy Weight Initiative: www.inhealthyweight.org

- Centers for Disease Control and Prevention: www.cdc.gov/healthyweight/assessing/bmi

- Children’s BMI Tool for Schools:

- American Academy of Pediatrics: http://pediatrics.aappublications.org/content/124/Supplement_1/S89.full

References


Local Resources
Policy Position Statement on Body Mass Index (BMI) Surveillance and Assessment in Schools

Position

The obesity epidemic in children is an enormous societal problem with far reaching consequences. Currently, 32% of children are obese and overweight, at or above the 85th percentile of the CDC growth charts.\(^1\) Even more troubling, is that elevated body mass index (BMI) -- a commonly used measure of adiposity -- is associated with metabolic syndrome, reaching a 50% association in the most severely obese children.\(^2\) Overweight and obese children also have higher rates of high blood pressure, abnormal insulin levels and dyslipidemias.\(^3\) Childhood obesity persists into adulthood\(^4\) threatening to reverse gains made in morbidity and mortality related to cardiovascular diseases and stroke. The American Heart Association (AHA) places a high priority on addressing the nation’s childhood obesity epidemic and supports a more comprehensive surveillance system in the United States to support the goals of eliminating the epidemic burden of heart disease and stroke.\(^5\) Within this context, BMI surveillance in schools -- where heights and weights are measured annually and data are collected longitudinally and there is public reporting of the aggregate data -- may serve to expand the understanding of childhood obesity trends and help to determine the efficacy of obesity prevention programs and support program planning. The results will provide important population-based assessment and prevalence data. The programs should be adequately funded as there is a cost incurred by states and schools to conduct them. Additionally, in 2009, the National Committee for Quality Assurance has added weight assessment and counseling for nutrition and physical activity for children and adolescents in its Healthcare Effectiveness Data Information Set (HEDIS).\(^6\) The HEDIS measures are used by the majority of America’s health plans to measure performance on important dimensions of care and service. Hopefully, this first-time measure will drive improved diagnosis and treatment of childhood obesity in the healthcare environment.

However, BMI screening programs used for individual health assessment, where results are reported to parents, raise a number of concerns around measurement techniques, adequate training for those conducting the assessment, privacy protection, effective parental notification, and the importance of linking families and physicians to resources in the community that address prevention and treatment -- nutrition, behavior change, and physical activity. There is inadequate information on the impact of BMI screening for the purpose of health assessment in schools on weight-related attitudes in children, self-concept, and the behavior of youth and families.\(^7,8\) If a BMI assessment program is established for the purpose of individual health screening, and even for surveillance, then the following safeguards should be implemented: introduce the program to school staff and community members through open houses, local school board meetings, staff development opportunities, the district website, and other typical communication channels, obtain parental consent, train staff to administer the program effectively, and assure that the program is led by a highly-qualified staff member such as a school nurse. Other safeguards include obtaining and using accurate equipment, accurately calculating and interpreting the data, developing efficient and confidential data collection procedures, not using BMI results to evaluate student or teacher performance, and regularly evaluating the program and its intended outcomes and particularly unintended consequences.\(^9,10,11\) Through parental notification, programs should also recommend that results are shared with the students’ health care providers.
Other measures of adiposity, such as waist circumference, are increasingly invoked as an indicator of insulin resistance, dyslipidemia and other comorbidities of obesity and may be useful to characterize risk in the obese child. However, because of the difficulty in measuring and the uncertainty of appropriate cutoffs in children, routine use is not recommended at this time.\textsuperscript{12}

II. Background Rationale and Landscape

Responding to the childhood obesity epidemic, many states have already implemented or are considering implementing BMI surveillance/assessment programs. In 2007, eleven states enacted laws addressing student BMI measures and/or physical fitness assessments.\textsuperscript{13} Arkansas was the first state to implement a program directed toward health assessment and surveillance. The Arkansas Center for Health Improvement, an independent entity, developed and validated a BMI measurement protocol, trained school staff on how to conduct BMI assessments, created a secure BMI database, and disseminated individual and confidential child health reports to parents.\textsuperscript{14} Participation by schools and students has been high in the Arkansas program since there is significant collaboration between families and the health and education communities. The program and the initiative have allowed Arkansas to track the progress of the state’s childhood obesity epidemic.\textsuperscript{15} Pennsylvania has a similar growth screening program where school health professionals can monitor growth and development patterns of students in grades K-12, identify students who may be at nutritional risk, and notify parents/guardians of screening results with a recommendation to share the findings with the student’s health care provider for further evaluation and intervention if necessary.\textsuperscript{16} Within these kinds of BMI screening programs, it is important to link families and physicians to available community resources, so that obesity prevention and treatment activities can follow; this may require the development of increased provider capacity. In states like Arkansas and Pennsylvania, screening was only part of more comprehensive interventions that included increased access to healthier foods in schools and communities and physical activity initiatives.

Support for BMI assessment used for surveillance is fairly robust.\textsuperscript{17,18,19} A recent study showed that the measurement of height and weight in schools by school nurses is a reliable means of surveillance and maintains student privacy.\textsuperscript{20} The National Health and Nutrition Examination Study (NHANES) and the Youth Risk Behavior Surveillance System (YRBSS) provide population-based, cross-sectional state and national samples, however the YRBS data are self-reported. Studies comparing the YRBS self-report data with measured heights and weights have demonstrated that the self-reported data typically underestimate the prevalence of child and adolescent overweight and obesity.\textsuperscript{21} There is a real need to have comprehensive, longitudinal, cohort state-wide or national assessment of childhood and adolescent obesity to track progression of the epidemic and evaluate interventions and there should be coordination of a national database that tracks this aggregate data.\textsuperscript{22} Funding for national surveillance programs like NHANES and YRBS and BMI surveillance should be more robust.

The use of BMI assessment for individual health screening is less consistent. The Institute of Medicine does recommend annual school-based screening.\textsuperscript{23} The CDC, on the other hand, issued cautionary guidance in 2007 around BMI assessment used for health screening purposes since the efficacy of these programs is not yet well-established and there are concerns that these programs might stigmatize students, lead to harmful behaviors, or that they may be ineffective or waste health promotion resources.\textsuperscript{24} The U.S. Preventive Services Task Force concludes that there is not enough evidence to recommend for or against BMI screening programs for children to prevent obesity and poor health outcomes.\textsuperscript{25} The American Academy of Pediatrics does support annual screening within the child’s medical home as a strategy for assessing and combating childhood obesity.\textsuperscript{26}

The AAP has several criteria for successful screening programs in schools: the screening test should be sensitive, specific and reliable, screeners must be well-trained, there should be a significant target population, those with positive results should be referred for additional evaluation and treatment, there
should be effective treatment available and early intervention must be beneficial, the benefit should outweigh the expenses, the site should be appropriate for conducting the screening and communicating the results, and the program should be reviewed for its value and effectiveness.27 BMI screening for health purposes in schools does meet several, but not all of these criteria and therefore should be approached with careful consideration of the potential concerns mentioned previously.

Summary Policy Recommendation:

1. The American Heart Association supports legislation and regulation that addresses BMI assessment in schools for the purpose of surveillance and to determine the efficacy of obesity prevention and intervention programs.

2. The American Heart Association does not recommend BMI assessment programs used for individual health screening purposes unless there is careful consideration of privacy issues, adequate training, measurement techniques, parental notification, adequate evaluation, and the importance of linking families/caregivers with resources in the community.

3. The AHA favors the development of a national database to compile, achieve and make available to researchers BMI surveillance data.

4. The AHA supports the development of adequate resources to diagnose and treat childhood obesity.

5. The AHA encourages research into the relative value of different measures of adiposity.

6. The AHA advocates for increased funding for more comprehensive and robust YRBS and NHANES surveillance.

References:


BMI-for-Age Screening Guidelines for Schools
Massachusetts Department of Public Health

Table of Contents

Acknowledgements ........................................................................................................ 3
Introduction .................................................................................................................. 4
Massachusetts General Laws and Regulations ............................................................. 5
Essential Elements of Body Mass Index (BMI) Screening ............................................. 6
Equipment and Tools for Proper Measurement of Height and Weight ...................... 9
Protocols for Measuring Height and Weight ............................................................... 10
Measuring Non-Ambulatory Students ....................................................................... 11
Calculating BMI and Recording Measurements ....................................................... 12
Parent Communication, Referral and Follow-up ......................................................... 12
References ................................................................................................................... 15
Appendices: Sample Materials and Resources ........................................................... 16
  A. Sample Pre-Screening Notification Letters ......................................................... 17
  B. Template for Reporting Individual Screening Results ....................................... 20
  C. Sample Physician Post-Screening Notification Letter ....................................... 21
  D. Guidelines for Measuring Non-Ambulatory Students ....................................... 22
  E. Eating Disorders and Undernutrition .................................................................. 25
  F. Sample Resources ................................................................................................. 26
  G. BMI for Weight Charts ....................................................................................... 32
Acknowledgements

This manual is an update of the “Comprehensive Growth Screening Guidelines for Schools” originally developed and published in 2007 by the Massachusetts Department of Public Health. The state regulations on Physical Examination of School Children, 105 CMR 200.000, were revised in 2009. These guidelines reflect changes made in the regulations relative to height and weight measurements.

We wish to thank the following individuals from the Bureau of Community Health Access and Promotion, Division of Primary Care and Health Access and the Division of Prevention and Wellness at the Massachusetts Department of Public Health for their thoughtful input into the update of these guidelines:


Our thanks are also extended to our statewide partners who participated in the BMI Implementation Work Group for their contribution to the revision of this guide:

Laura Newstein, Worcester District, Medical Society Alliance; Virginia Chomitz, Institute for Community Health; Aviva Must, Tufts School of Medicine; Elizabeth Goodman, M.D., Floating Hospital for Children at Tufts Medical Center and the Massachusetts Chapter of the American Academy of Pediatrics, Pat Bebo, RD, Massachusetts Dietetic Association; Marge Rossi, R.N., Scituate Public Schools; Pat Small, R.N., Stoughton Public Schools; Wendy Gage, R.N., Ludlow Public Schools; Jane Kisilieus, R.N., Quincy Public Schools; Josephine Wendell, RD, Cambridge Health Alliance; Nancy Filler (volunteer) and Margaret Lovesky, RD, Optimal Weight for Life Program, Children’s Hospital.
BMI Screening Guidelines for Schools

I. Introduction

The goal of the Massachusetts Department of Public Health’s (MDPH) Body Mass Index (BMI) Screening Guidelines for Schools is to provide school staff with the necessary information and tools to successfully collect heights and weights, calculate BMI, effectively communicate results to parents and guardians in a sensitive and confidential manner, and provide the data to the MDPH. Consistent with this goal, schools are required by Massachusetts General Law to provide health screenings for students (M.G.L. Chapter 71, Section 57 and 105 CMR 200.000) and follow up with the results of these screenings with families and referrals to primary health care providers as necessary.

In February 2009, Massachusetts promulgated amendments to the regulations on Physical Examination of School Children, 105 CMR 200.000, to improve the screening and monitoring of the health assessment of children across the Commonwealth. Among other changes, the amended regulations require screening for height and weight and the recording and reporting of the BMI for all students in grades 1, 4, 7 and 10 (or of comparable age). The components of the Massachusetts Regulations 105 CMR 200.000 for the Physical Examination of Children include:

- Prior notification of BMI screenings and the benefits of the screening to all parents and guardians by any reasonable means;
- Accurate measurement of height and weight and the calculation of BMI for students in grades 1, 4, 7, and 10 (or by a student's 7th, 10th, 13th and 16th birthday in un-graded classrooms) by trained individuals with consideration for privacy of the student during the screening process;
- Direct, confidential notification of parents or guardians of the child’s screening results even if the child or adolescent is within normal BMI range;
- Provision of easily understood informational materials that explain BMI screenings to parents or guardians;
- Identification of resources that support healthy eating and active living in the community;
- Referral to health care provider if the student’s BMI is below the 5th percentile or above the 85th percentile;
- Documentation of the student's BMI in the student's health record and;
- Submission of BMI results to MDPH using appropriate data reporting tools

Further, the BMI information will enable school health professionals to:

- Identify students who may be at nutritional risk.
- Identify students who are at risk for eating disorders.
- Identify students who are underweight, overweight or obese or at risk of becoming
overweight or underweight.

- Encourage discussions between families and health care providers about their child’s growth and development.
- Promote healthy eating and active living in the school community.
- Assist the MDPH in monitoring BMI trends among children and adolescents in communities across the state.

Overweight and underweight children are at risk for a variety of health problems, making early identification of weight status important. Eating disorders such as anorexia, bulimia and binge eating can result in both serious long-term health problems and poor school performance. Overweight and obesity in children and adolescents are risk factors for a variety of serious health conditions such as Type 2 Diabetes and cardiovascular disease (Comprehensive School Health Manual, 2007).

These guidelines include a review of the Massachusetts laws and regulations related to BMI screening of school-age children, information on the proper use and maintenance of equipment, protocols for collecting accurate measurements, recommendations for notification of parents and guardians about screening results, and suggestions for materials for referrals and resources to promote health within the community.

While it is important that height and weight measurements be done accurately, it is equally important that they be done in a respectful and sensitive manner (Ikeda and Crawford, 2000). A successful BMI screening program benefits individual students and the entire school community by identifying risk factors for health problems. BMI information can help increase the awareness of the school community about the importance of healthy eating and active living. Every student in Massachusetts can benefit from eating well and being physically active.

II. Massachusetts General Laws and Regulations Pertaining to Growth Screening

105 CMR 200.500: Annual Assessment of Physical Growth and Development

Each school committee or board of health shall adopt policies and procedures to ensure that the Body Mass Index (BMI) and corresponding percentile of each student in grades 1, 4, 7, and 10 (or, in the case of ungraded classrooms, by a student’s 7th, 10th, 13th and 16th birthday) is calculated and reported directly and confidentially to a parent or legal guardian.

(A) Measurement of weight and height shall be done by trained school personnel or others approved by the Department for this purpose, in accordance with guidelines of the Department. Prior notice of the screening and the benefits of the screening shall be provided to the parent or legal guardian by any reasonable means. Every effort shall be made to protect the privacy of the student during the screening process and in the communication of information about the student’s BMI to the parent or legal guardian.
(B) A report of each student’s BMI and percentile, along with easily understood informational and explanatory materials provided or approved by the Department on BMI, healthy eating and physical activity shall be mailed or otherwise directly communicated in writing to the parent or legal guardian of the student, in accordance with guidelines of the Department. The materials shall indicate that questions about healthy weight should be discussed with the student’s primary care provider.

(C) The Department shall be provided annually with student BMI data, by school or school district, as specified in guidelines of the Department.

(D) A copy of the student’s BMI shall be maintained in the student’s school health record. With the consent of the parent or legal guardian, a copy shall be provided to the student’s primary care provider.

(E) Parent(s) and legal guardian(s) shall be provided with an opportunity to request, in writing, that their child not participate in the program.

(F) These requirements shall be met by June 30, 2010 by public school systems receiving direct funding from the Department for school nursing services as of the date of promulgation of these regulations and by June 30, 2011 by all other public schools.

III. Essential Elements of Body Mass Index (BMI) Screening

A. Prior notification of students, parents or guardians, and providers

- Notify parents or guardians before BMI screening is done is an essential component of program success. Parents and guardians, students, school administrators and staff should all be informed about the purpose and process of the school’s BMI screening initiative prior to collecting the BMI.

- Information on the use and importance of BMI screening, evaluation and the method of reporting the results should be provided to all parents and guardians. (See Appendix A for sample letters of prior notification.)

- In addition to written notification to all involved, it may be helpful to present information at parent and community meetings about the program, including what the results mean and resources for learning more about promoting good nutrition, physical activity and maintaining a healthy weight.

- Parental pre-notification can take many forms including a notice in a school publication, hand-carried notes to parents or guardians, or as part of the student handbook.

- Parents and guardians must be given the opportunity to waive their child’s BMI screening at school by submitting a written request.
• Adequate notification of school administration and staff will enhance support for the BMI screening program and minimize the barriers to securing appropriate space and scheduling time out of class.

• Local primary health care providers will be better able to address follow-up needs and answer questions from concerned parents or guardians if they are informed of the program in advance and any resources available through the school. The Department of Public Health will work with its partners to provide advance notice about the screening initiative to primary care providers.

B. Proper supervision of appropriately trained staff under the direction of the school nurse

• The school nurse has the responsibility for training, monitoring and follow-up of all screening activities.

• To improve accuracy, DPH recommends that at least two staff conduct the BMI screening: one to measure the child and one to record the data. This greatly reduces recording errors.

• School nurses and any other staff conducting screenings should participate in an MDPH-sponsored training.

• The school nurse has the responsibility for training, monitoring and follow-up of all screening activities.

• Training should include:

  1. Proper use of equipment for accurate and precise measurement;
  2. Review of forms for the recording of information;
  3. Emphasis on the importance of privacy and confidentiality for the students; and
  4. Appropriate and sensitive communication with students regarding height and weight measurement (e.g., saying “Let’s check your weight” instead of “Let’s see how big you are”; reassuring students that kids’ bodies come in different sizes and shapes; and avoiding labels such as “obese”, “overweight”, “too thin”, or “too short”).

C. Properly prepared and equipped space for screening

• There should be adequate time for screening, as well as provisions for student supervision, access to proper equipment, and any special accommodations that are necessary to ensure appropriate assessment and individual privacy.

D. Appropriate and well-maintained screening equipment

• Use appropriate equipment that has been properly maintained and calibrated annually or more frequently as necessary. (See Section 4: Equipment Maintenance and Calibration.)
E. Protocols to assure privacy of the screening process and confidentiality of results

- Each student should be weighed and measured in private with no other students present.
  
  Students react in a variety of ways to being weighed and measured at school. Girls are most often concerned about being overweight regardless of their actual size. Boys worry about being short and too thin (Pennsylvania Department of Health, 2004). Screeners should be prepared to be objective, calm and open to students’ concerns. Consider the question, “How can this task be done in a way that will promote a positive [body] image and high self-esteem in youngsters of all sizes and shapes?” (Ikeda and Crawford).

- Space should be arranged so that confidentiality is assured, in terms of both sight and sound. In order to promote confidentiality of results and reduce anxiety, all students should be weighed and measured facing away from the scales.

- Students’ BMI screening results are part of the health record and, as such, are strictly confidential and should not be discussed with anyone other than the student and his/her parent or guardian and healthcare provider. Some students may need to meet with the school nurse at a later time to discuss their concerns; be sure to do so in a space that will respect the student’s privacy.

- Care should be taken that findings are never accessible to other students or shared with staff and are communicated to parents and guardians in a direct and confidential manner.
IV. Equipment and Tools for Proper Measurement of Height and Weight

A. Required Equipment

For measuring weight, use a properly calibrated balance-beam or strain-gauge floor scale (mechanical or digital) that:

- Can weigh in 0.1 kg or ¼ lb increments;
- Has a stable platform;
- Has the capacity to be “zeroed” after each weight is taken; and
- Has the capacity to be calibrated.

For measuring height, use a stadiometer that:

- Is able to read to 0.1 cm or 1/8 inch;
- Has a large stable base; and
- Has a horizontal headpiece that is at least 3 inches wide that can be brought into contact with the most superior part of the head (i.e. the crown).

B. Calibration of Equipment and Use of Up-to-Date Screening Tools

Check the equipment regularly to ensure accurate measurements.

- Scales should be calibrated on a routine basis.
  
  o Use known weights (a set of standard weights purchased from a sports store) on the scale to check accuracy.
  o Re-calibrate if the scale has been moved to a different surface.
  o Portable digital scales, frequently moved, should be calibrated monthly.
  o For scales that are not moved or used excessively, calibrate annually by contacting your town Department of Weights and Measures.

- Check the stadiometer regularly to be sure the base is stable and measures are accurate.
V. Protocols for Measuring Height and Weight

To accurately weigh and measure students, the following procedures should be followed:

A. Weight

- Make sure that the scale is on a firm surface, preferably an uncarpeted floor.
- Set the scale at zero reading.
- Have student remove shoes.
- Have student remove heavy outer clothing, such as sweater, jacket, vest and belts.
- Have student empty their pockets of heavy objects such as cell phones or iPods.
- Have student step on scale platform, facing away from the scale, with both feet on platform, and remain still.
- Read weight value to nearest ¼ pound or .1 (1/10) kilogram.
- Record weight immediately on the data form before student gets off the scale.
- If using a balance-beam scale, return weights to zero position.

B. Height

- Have student remove shoes and hat.

- Have student remove hair ornaments, buns, and braids to extent possible (note on chart if unable to obtain an accurate measurement, don’t “guesstimate” height of hairdo).

- Have student stand on footplate portion with back against stadiometer rule.

- Have student bring legs together, contact at some point (whatever touches first).

- Make sure that the knees are not bent, arms are at sides, and shoulders are relaxed.

- Make sure that the back of the student’s body touches/has contact with stadiometer at some point.

- Make sure that the body is in a straight line (mid-axillary line parallel to stadiometer). Check to see if the student’s head is in appropriate position. You should be able to draw a straight (perpendicular) line from the back of the board, past the ear opening and the top of the check bone. You can use a pencil or ruler to help check the line. This is called the Frankfort plane.

- Lower headpiece snugly to crown of head with sufficient pressure to flatten hair.

- Read value at eye level in an upward direction (from lowest to higher number).

- Measure to nearest .1 cm or 1/8 inch and record value.
• Repeat measurement, having the child line up again, and record appropriate value immediately on data form.

• Repeat measurements should agree within ½ cm or ¼ inch. If they do not, repeat measurement a third time.

Reading Height Measurements

- Read at eye level
- Count visible lines
- If the arrow points at a line, count that line
- If the arrow points between lines, read to nearest line
- Use .5 (1/2) line as guide
- Read in upward direction (from lower to higher number)

(PA Department of Health, 2004)

VI. Measuring Non-Ambulatory Students

Assessing the weight status of non-ambulatory students with special health care needs requires special consideration as children may not be able to stand up or lie flat. Alternate methods are available for measuring children requiring special accommodations.

In general, the purpose of measurements for children who may have atypical growth patterns should be for monitoring the progress of the individual child over time and not used to compare the child with others, even those who may have similar conditions. Remember that BMI is used to indicate measures of body fatness. With some conditions that involve muscle wasting and abnormal bone growth, the standard BMI reference percentile curves would not be an appropriate comparison point.

(See Appendix D for more detailed information on measuring non-ambulatory students.)
VII. Calculating BMI and Recording Measurements

BMI for students is to be calculated and recorded, using proper tools for calculating BMI. Use one of the following:

- BMI Table, found online at the CDC website
- BMI Wheel
- BMI calculation computer software
- BMI Calculator (http://apps.nccd.cdc.gov/dnpabmi/Calculator.aspx)
- Children’s BMI Tool for Schools
  (http://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/tool_for_sCHOOLS.ht ml)

Plot results in a gender-appropriate BMI-for-Age chart. BMI-for-Age Percentile charts are available on the CDC’s website http://www.cdc.gov/growthcharts/clinical_charts.htm Copies in Appendix G

Record the information of student BMI screening on a Massachusetts School Health Record. (See Massachusetts Comprehensive School Health Manual 2007 for sample forms.)

VIII. Parent Communication, Referral and Follow-up

The information provided for parents and guardians along with the results of the school-based BMI screenings gives them the knowledge they need to begin a conversation with their health care provider about their child’s weight status, eating and physical activity behaviors. While the state regulations require schools screen students in grades 1, 4, 7 and 10, all children should have an annual BMI screening as a part of their regular physical examination at their primary care providers’ office.

Individual student BMI screening results should be reviewed over time and individual characteristics of each student should be taken into consideration when evaluating the data. It is important to note that BMI does not differentiate between fat tissue and lean tissue (for example, an athlete who has more muscle may have a higher-than-expected BMI for his/her height and weight).

To avoid stigmatization of any student and protect the confidentiality of individual screening results, BMI screening results should be mailed or otherwise directly communicated to the parents and guardians, and not sent home with the student. When possible, for screening results that are significantly out of range or of particular concern, it may be appropriate for the school nurse to personalize the letter or place a phone call to the student’s parents or guardians.
Because BMI measurement is a key factor in tracking a student’s overall health status, all parents and guardians of students that have been screened should be provided with their child’s BMI results, no matter if they fall outside or within the healthy weight range. Parents or guardians should also be provided with guidelines on how to interpret the BMI data for their child.

Parents or guardians should be reminded that the BMI results are not meant to be a diagnosis. BMI is just one piece of information health care professionals use to determine a child’s health status because there are a number of factors that can affect BMI.

Parents or guardians should be encouraged to consult their child’s primary care provider if the student’s height/weight measurements are below the 5th percentile BMI, above the 85th percentile, or indicate a possible deviation from an expected growth curve for that child. The school nurse is responsible for referring students through their parents or guardians for follow-up with the child’s healthcare provider.

Finally, it is important to include information with the BMI screening results about resources that will help students and parents or guardians practice healthy lifestyle habits to avoid future health problems. The MDPH has developed and identified a variety of resources for schools to use. Materials will be accessible through the state’s Mass in Motion website at www.mass.gov/massinmotion/. Resources and referrals for nutrition, physical education, recreation and mental health counseling, stress management, and dysfunctional eating can be incorporated in messages to families in the school community. (See Appendix E for a list of resources that can be used to provide families with additional information concerning healthy weight.)
BMI Screening of Children and Adolescents in the School Setting

Checklist

☐ Notify students, parents or guardians, school staff and administrators and local primary care providers prior to implementation of the screening program. Explain the process to parents or guardians and let them know when to expect the screening results in the mail.

☐ Recruit and train staff.

☐ Review confidentiality and communication issues with screeners.

☐ Make sure that appropriate equipment is available and has been properly maintained and calibrated.

☐ Prepare space for screening. Be sure to provide a private setting for measurement of heights and weights.

☐ Use appropriate tools for calculating and documenting the results

☐ Report results to parents or guardians – respect confidentiality and mail or directly communicate in writing the results of the screening with a guide for interpreting the results and possible follow-up steps.

☐ Provide educational materials on healthy eating and physical activities to parents or guardians and primary health care providers. Use the resources provided in the “Resource” section of these guidelines and visit www.mass.gov/massinmotion/ for more information and additional resources.

☐ Submit BMI results to MDPH using appropriate data reporting tools.
IX. References


Massachusetts Department of Public Health, Comprehensive School Health Manual, Boston MA, 2007


US Centers for Disease Control and Prevention (CDC), CDC Growth Charts: United States (http://www.cdc.gov/nchs/about/major/nhanes/growthcharts/background.htm)
X. Appendices – Sample Materials and Resources

A. Sample Pre-Screening Notification Letters
B. Template for Reporting Individual Screening Results
C. Sample Physician Post-Screening Notification Letter
D. Guidelines for Measuring Non-Ambulatory Students
E. Eating Disorders and Undernutrition
F. Sample Resources
G. BMI for Weight Charts
A. Sample Pre-Screening Notification Letters

Sample Letter 1: Notification to School Faculty and Staff

[Date]

[School Letterhead]

Dear Faculty and Staff:

I am writing to inform you about our Body Mass Index (BMI) screening program so that you, along with students, parents, guardians, and the community, can help make this year's program a success.

The state’s BMI Screening mandate (M.G.L. c.71 s.57) requires that all schools collect height and weight measurements of students in grades 1, 4, 7, and 10. These measurements will be used to calculate BMI and the results will be reported to students' parents or guardians and to the Massachusetts Department of Public Health. BMI is a “weight for height for age” index that can be a useful tool in early identification of possible health risk factors among children and youth.

The results of the BMI screening will be kept confidential in each student’s school health record and will be mailed or directly communicated in writing to the parents or guardians; not sent home with the student. The parent or guardian letter will include a description of the screening program and interpretation of the results as well as recommendations to share the results with their child’s primary health care provider.

Because students may react in a variety of ways to the BMI screening in school, it is important that you are aware that this screening is taking place so that you can respond appropriately. For example, if a child makes a negative comment about his/her body, a sensitive response might be, “Kids come in different sizes and shapes.” You can help by being objective and open about your students’ concerns about their weight in your responses.

The screenings will be conducted on [Insert dates] in [Insert locations]. Letters with information for parents or guardians will be sent on [Insert date].

This is an opportunity for our school to coordinate efforts to communicate with students, parents or guardians, and the community about the positive steps our school is taking to support healthy eating and physical activity. At the present time, we provide [Insert programs that are coordinated within the district and/or school to encourage healthy eating and active living for both students and staff], and are planning [Insert information about the positive things you would like to start at your school (e.g., school health council, parent presentation, physical education programs or health education classes)]

Please take a moment to stop by my office, or email me to let me know if you have any questions about this screening program or if you’d like to be a part of our school’s efforts to create a healthier environment. Together we can make a real difference in the health and wellness of our students!

Thank you for your time and consideration.

Sincerely,

School Nurse [you may also consider having the principal co-sign the letter]
Sample Letter 2: Pre-Screening Notice to Parents and Guardians

[Date]

Dear Parent or Guardian:

This letter is to let you know about the Body Mass Index (BMI) Screening Program that will be happening soon at your child's school.

A Body Mass Index, or BMI, is a measure that is used to show a person's "weight for height for age." It is calculated using an individual's height and weight. Just like a blood pressure reading or an eye screening test, a BMI can be a useful tool in identifying possible health risks.

The purpose of the BMI Screening Program is to give you information about your child's weight status and ideas for living a healthy life. In [name of school or district], we address our children's health and wellness with a comprehensive approach that includes health screenings and [Insert list of initiatives].

Massachusetts schools have taken heights and weights of students each year since the 1950's. According to the state's new BMI screening regulation which passed in April 2009, schools must now collect the heights and weights of students in grades 1, 4, 7 and 10. Each child's height and weight will then be used to calculate their BMI. The results will be mailed home or directly communicated in writing to you.

The school nurse will supervise your child's screening and will make sure your child's privacy is respected at all times. The results of your child's height, weight, and BMI measurements are strictly confidential — the results will be kept in your child's school health record and given to you directly by [state what form of direct communication will be used].

A BMI does not tell the whole story about your child's health status. BMI does not distinguish between fat and muscle. For example, if a child is very athletic and has a lot of muscle, his or her BMI may be high even though he or she is not overweight. That is why we encourage you to share the results with your child's health care provider. Your child's doctor or nurse is in the best position to evaluate his or her overall health and can explain the results of his or her BMI screening. They can also talk with you about whether there are steps you can take to encourage healthy eating and physical activity.

We are very interested in making sure that all our students are healthy. This year, the BMI screening will take place in [insert month of screening]. All children in grades 1, 4, 7 and 10 will have their height and weight measured and will have their Body Mass Index (BMI) calculated.

Please feel free to call me at [insert phone number] with any questions you may have about the BMI screening. Additional information about children's wellness and fitness is available upon request or you may access the state's resources at www.mass.gov/massinmotion.

Sincerely,

School Nurse [you may also consider having the principal co-sign the letter]
Sample Letter 3: Pre-screening Notification of Local Primary Care Providers

Dear Primary Care Provider:

The health and wellness of our children is a national priority. However, the latest federal data continue to show increases in rates of childhood obesity and incidence of eating disorders. The United States Department of Health and Human Services estimates that by 2010, 20% of children and youth in the United States will be considered obese. Researchers have found that childhood obesity is associated with a number of disorders including hypertension, insulin resistance, sleep apnea, menstrual abnormalities, and orthopedic problems (GAO, 2006).

In February 2009, Massachusetts promulgated amendments to the regulations on Physical Examination of School Children, 105 CMR 200.000, to improve the screening and monitoring of the health assessment of children across the Commonwealth. Among other changes, the amended regulations require screening for height and weight and the recording and reporting of the BMI for all students in grades 1, 4, 7 and 10 (or of comparable age). The [insert school name] will be completing its Body Mass Index (BMI) screening for students in grades 1, 4, 7 and 10 during the week of [insert date]. We will be measuring the height and weight of each student and calculating the BMI and BMI-for-age for each child using the Centers for Disease Control (CDC) growth charts.

Parents and guardians will be notified of the results of this screening for each of their school-age children. [State what form of direct communication will be used] BMI results will be mailed or directly communicated to parents and guardians of each student screened. A recommendation to discuss the results with the child’s primary care provider will be made for those children whose BMI-for-age screening place them underweight (<= 5th percentile) or overweight/obese (>= 85th percentile) categories.

In this initiative, which is part of the Mass in Motion campaign, the Massachusetts Department of Public Health is partnering with many organizations, including the Massachusetts Chapter of the American Academy of Pediatrics, to promote healthy weight in children across the state. We encourage you to incorporate some of the nutritional information enclosed in this letter to assist you in providing your patients (and their parents and/or guardians) tools to make healthy choices.

Please be aware that the [insert school name] and/or the town of [insert town name] have several resources available to help combat obesity in our youth. [Insert list of resources]. Resources to promote healthy eating and physical activity can be found in the Department of Public Health’s web site www.mass.gov/massinmotion. Other resources that you may find useful include:

- Assessment of Child and Adolescent Overweight and Obesity: A Supplement to Pediatrics http://pediatrics.aappublications.org/content/vol112/Supplement_4/index.dtl
- The Healthy Care for Healthy Kids Toolkit - Management and Treatment - Office Tools developed by NICHQ and Blue Cross Blue Shield of MA are available at http://www.nichq.org/childhood_obesity/toolkit_prevention_office.html

If you have any questions concerning the BMI Screening Program being implemented at the [insert school name] School, please contact either [insert principal name], the school principal at [insert principal’s phone] or [insert school nurse name], the school nurse at [insert phone number].

Thank you for your efforts to maintain the health of Massachusetts’ children.

Sincerely,

School Nurse [you may also consider having the principal co-sign the letter]
B. Template for Reporting Individual Screening Results

Screening Results for Parents and Guardians

[Date]

[School Letterhead]

Dear Parent or Guardian:

Your child, [insert name of student], was weighed and measured as part of our school’s BMI Screening Program. A Body Mass Index (BMI)-for-Age percentile was also calculated.

The purpose of the BMI Screening Program is to inform you about your child’s weight status and let you know if your child is in a healthy weight range, overweight, obese, or underweight. The result of your child’s BMI screening is strictly confidential, and will not be discussed with anyone other than you.

Your child’s measurements were: Height: _________ Weight: _________ BMI Percentile: _________

☐ underweight, less than the 5th percentile
☐ healthy weight, 5th percentile to less than the 85th percentile
☐ overweight, 85th to less than the 95th percentile
☐ obese, 95th percentile or greater

If your child’s BMI is below the 5th percentile he/she may be underweight. If your child’s BMI is above the 85th percentile, he/she may be overweight or obese. You should share these results with your child’s health care provider. If your child does not have a regular health care provider or you don’t have health insurance for him/her, please contact us for information about obtaining health insurance coverage or finding a provider.

BMI does not tell the whole story about your child’s weight status. Many factors other than height and weight can influence your child’s weight such as family history. Also, BMI does not distinguish between muscle and fat. For example, if a child is very athletic and has a lot of muscle, his or her BMI may be high even though he or she is not overweight. Please see the information that has been included with this letter to help you understand what your child’s BMI means and what you can do to help keep your child healthy and physically active. More information is available in the Department of Public Health’s website www.mass.gov/massinmotion/

If you have any questions, please call me at [insert phone number].

Sincerely,

School Nurse
Ohio Department of Health
School and Adolescent Health

Guidelines for Measuring
Heights and Weights
and Calculation of
Body Mass Index-for-Age
in Ohio’s Schools
I. Introduction

The purpose of these guidelines is to provide practical guidance to school personnel who choose to collect heights and weights of the school-aged population. Screening for health problems in school has been viewed as an appropriate and important part of school health services. The intent of screening is not to diagnose, but to separate those screened into two groups: those with no apparent problem in the area being screened and those who need follow-up. Data collected during the screening can be used to influence policy and programming to create a healthier school environment.

Screening for height and weight can have value when there is sound purpose and follow-up such as to establish baselines, develop programs, measure progress or provide parents with information regarding their student's body mass index (BMI)-for-age. Sensitive and supportive safeguards need to be in place. Labeling a student as overweight, too fat, too thin or skinny based on a single height/weight measurement at one point in time is inappropriate. The physical and emotional well-being of students is also jeopardized when they develop poor self-esteem because of their body size, experience weight discrimination or use unsafe weight loss practices.

The following guidelines were developed to help you measure students in a way that is sensitive and supportive, as well as accurate.
II. Appropriate Procedure for Screening

Step 1  Review school district procedures regarding health screenings. Support from the district's administration is essential for a successful screening program.

Step 2  Parental notification/permission should be consistent with other screenings. Refer to your school district's screening procedures.

Step 3  Prepare the school faculty, staff and students for the screening process and value of the screen. Important concepts that need to be conveyed to students include:
- There are different body types; some body types are naturally associated with a higher body weight.
- A range of weights is normal. People can be healthy at many weights and look very different from one another. It is not normal or possible for every person to be the same size or shape.
- BMI does not directly measure body fatness.
- Normal growth and development patterns affect body shapes and sizes, especially at puberty. There may be sudden shifts in height and/or weight during growth spurts.
- Subtle media messages suggesting that only thin people are happy or attractive should be challenged.
- Students have the ability to make healthy food choices.
- Daily physical activity contributes to overall health and a healthy weight.
- Sedentary behaviors can contribute to weight gain.

Step 4  Train and monitor assistive personnel in the screening process. It is preferred that a health care professional such as the school nurse conduct height and weight screenings. If assistive personnel are utilized, training must be provided. Interpretation of results of the screening is the responsibility of the health care professional.

Step 5  Respectful Screening
Design a screening process that protects the self-esteem of students:
- The student's privacy needs to be protected in the screening process. In order to assure privacy, no other students should be present. Only the screener should observe the results. Height and weight should not be announced for other students to hear.
- The results of the screening should be kept confidential. No comments on height or weight should be offered during the measurement process; however, if the student requests results, height/weight can be shared but refrain from using language that labels or diagnoses. Do not label any student as overweight, obese, underweight, too thin, too short or too tall.
- Younger students and students who are anxious about the weighing process can be positioned with their backs to the scale during measurement.
• If a student makes a negative remark or has concerns about his or her own weight, it is appropriate to respond with a supportive comment. You may want to meet with the student in private at a later time to discuss his/her feelings, contact his/her parent/guardian(s) and offer resources.

• All students should undergo the same measurement procedures. No one student should be singled out for additional measurements because of physical appearance or weight.

Step 6 Conduct Weight/Height Screening
When weight/height screening is conducted, the process must assure the results are accurate. Ideally, growth assessment is conducted annually over a student’s entire K–12 career.

Measure Weight
Students should be weighed using a platform scale on a uncarpeted floor. This may be a balance beam scale with nondetachable weights (no bathroom scales or spring scales) or a medical grade digital scale. Check your equipment regularly to make sure you are getting accurate measurements. Scales should be calibrated on a routine basis. Calibration involves putting known weights on the scale to check accuracy.

Procedure
1. Ask the student to remove shoes and bulky clothing.
2. Place the sliding beam weights in the “zero” position before the student steps on the scale.
3. Ask the student to stand still with both feet in the center of the platform.
4. Record the measurement to the nearest ¼ pound.
5. Return the sliding beam weights to the “zero” position.

Measure Height
A standing height board or stadiometer should be used. This device has a flat, vertical surface on which a measuring rule is attached. It also has a moveable right angle block or headpiece and either a permanent surface to stand on or the entire device is mounted on the wall of a room with a level, uncarpeted floor. If this is not an option, a metal wall mounted measuring tape is preferred over plastic or cloth that may stretch and provide an inaccurate measurement. Measuring rods attached to scales should not be used. The surface is not always stable and the measuring rod’s hinge tends to become loose, causing inaccurate readings.

Procedure
1. Before you begin, ask the student to remove shoes, hat and bulky clothing such as coats and sweaters. Ask the student to remove or undo hairstyles and hair accessories that interfere with the measurement. If the student is unwilling to undo an intricate hairstyle, locate the crown of the head to the best of your ability.

2. Direct the student to stand erect with shoulders level, hands at sides, heels together and weight evenly distributed on both feet. The student’s feet should be flat on the floor or foot piece, with heels comfortably together
and touching the base of the vertical board. There are four contact points between the body and the stadiometer: head, upper back, buttocks and heels (see diagram 1).

3. Ask the student to look straight ahead. When the chin is correctly positioned, the back of the head may no longer make contact with the board (see diagram 2).

4. Ask the student to breathe in and maintain his or her position. Lower the headpiece until it firmly touches the crown of the head and is at a right angle with the measurement surface. Check the contact points to ensure the lower body stays in the proper position and the heels remain flat. Read the measurement at eye level.

5. Record the height to the nearest 1/8 inch.

III. Calculate Body Mass Index-for-Age

Body Mass Index-for-Age Definition

BMI-for-age is the measure used for children ages 2 to 20 years. BMI-for-age is the only indicator that allows us to plot a measure of weight and height with age on the same gender specific chart. BMI is more highly correlated with body fat than weight alone. A committee comprised of members from the Maternal and Student Health Bureau, the American Academy of Pediatrics and the American Medical Association, with support from the Centers for Disease Control and Prevention (CDC), recommends that BMI-for-age be used to routinely screen for weight status.

- Convert height and weight to BMI by using one of the following methods:
  - Align the student’s height and weight on a BMI wheel that is specific for ages 2–20, or
  - Calculate BMI using the following formula:
    \[ \text{BMI} = \frac{\text{weight in pounds}}{\text{height in inches}^2} \times 703 \]
  - Use the CDC’s online BMI calculator at
    \[ \text{http://www.cdc.gov/healthyweight/assessing/bmi/index.html} \]

- Determine the student's age prior to plotting the measurements on the appropriate chart. When plotting the measurements on the charts for 2–20-year-olds, the student's age should be rounded to the nearest quarter of a year.

- Plot the results on the sex-specific BMI-for-age percentile chart published in 2000 by the CDC (a sample copy of the BMI-for-age charts for males and females ages 2–20 is included in this packet). The charts can be accessed at the following Web site:
  \[ \text{http://www.cdc.gov/growthcharts} \]. All measurements for one student, grades K–12, should be plotted on the same BMI-for-age chart.

- Growth patterns that fall outside the established parameters of ≥5th and <85th percentiles suggest the need to recheck measurements, plots and calculations and make any necessary corrections or adjustments.
IV. Interpret BMI-for-Age Results

The following information is for school districts that are monitoring individual students BMI-for-age over grades K–12.

The BMI-for-age charts are designed to screen for weight problems, not to diagnose them. A BMI equal to or above the 85th percentile or below the 5th percentile on the BMI-for-age charts indicates further assessment is appropriate but does not mean that a student is underweight or overweight. The following established cut-off points are used to identify underweight and overweight students and adolescents:

<table>
<thead>
<tr>
<th>Healthy weight (≥ 5% to &lt; 85%)</th>
<th>Height and weight are within normal range</th>
<th>No action is necessary*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight (&lt; 5%)</td>
<td>Considered underweight</td>
<td>Recommend medical assessment</td>
</tr>
<tr>
<td>Overweight (≥ 85% to &lt; 95%)</td>
<td>Considered at risk for becoming overweight. Additional risk factors such as family history, blood pressure, cholesterol, etc. may increase risk for future chronic diseases</td>
<td>Consider a medical assessment at the time of the next annual physical exam</td>
</tr>
<tr>
<td>Obese (≥ 95%)</td>
<td>Considered overweight. Increased risk for chronic diseases such as diabetes</td>
<td>Recommend medical assessment</td>
</tr>
</tbody>
</table>

* Physical activity and healthy nutrition are highly recommended for all students, regardless of their BMI results.

BMI does not directly measure body fatness. A very muscular student can have a high BMI-for-age percentile and have very little body fat. Conversely, a student can fall into “normal” percentiles and have excessive body fat.

BMI-for-age interpretation is complicated by the fact that there are sudden shifts in height and weight during growth spurts. When both height and weight are changing, the BMI is unstable. BMI-for-age can be misinterpreted in students, because height and weight growth spurts occur at different times. A normal, temporary accumulation of weight preceding a height spurt can be misinterpreted as an impending weight problem. The pattern of growth is far more informative than the height and weight at any given time. To accurately interpret BMI-for-age, a series of measurements is needed.
V. Identify Community Resources to Help Families with Weight Concerns

Schools should identify sources of help in the community for families with weight concerns prior to implementing the screening.

Community Resources

• Identify resources available to families in the community for nutrition counseling and physical activity.

• Identify multidisciplinary weight treatment programs in the community, if they exist. Research has shown the most promising approach to dealing with childhood weight problems is multidisciplinary involving physicians, nurses, dietitians, exercise professionals, mental health professionals and families. This multidisciplinary model may not be available in every community.

VI. Parent Notification of BMI-for-Age Results and Referral Mechanisms

• Parental notification of BMI-for-age results should be consistent with other screenings.

• If a student’s BMI-for-age is equal to or exceeds the 85th percentile or falls below the 5th percentile on the BMI-for-age growth chart, a respectfully worded letter should be developed to notify parents that their student’s weight may present a health risk. The letter should suggest the parents seek further assessment by their family physician. The physician, in turn, will be able to do a complete medical assessment, make further referrals or implement a weight management program, if warranted. Sample letters are included in this packet.
References

CDC BMI Guidelines with links to the growth charts
http://www.cdc.gov/nccdphp/dnpa/bmi/bmi-for-age.htm


http://www.doh.state.fl.us/Family/school/healthy_school/hsinitiative.html

http://www.CNR.Berkeley.EDU/cwh/index.html

http://www.michigan.gov/mde


Resources

The following is a list of agencies that could provide expertise/assistance in the area of childhood nutrition and physical activity.

Local Health Departments

American Cancer Society—local affiliate

American Heart Association—local affiliate

Ohio Dietetic Association—http://www.eatrightohio.org

American Diabetes Association—local affiliate

Local hospitals—check with the dietetics/nutrition department

OSU Cooperative Extension Service

Local YMCA/YWCA

Parks and Recreation Departments

Dairy Council Mid East—http://www.drink-milk.com
Acknowledgement

Guidelines Writing Team

Dorothy Bystrom, RN, M.Ed., NCSN—Chair
Ohio Department of Health

Susan Patton, MS, RD, LD
Ohio Department of Education

Heidi Scarpitti, RD, LD
Ohio Department of Health

Ann Weidenbenner, MS, RD, LD
Ohio Department of Health

Sincere Appreciation for Critical Input and Feedback

Susan Guy, RN, BSN, RNC
Plain Local School District

Sandy Miller, RN
Delaware General Health District

Nancy Mosca, PhD, RN
Youngstown State University

Angela Norton, MA
Ohio Department of Health

Kathy O'Dell, RN, M.Ed., NCSN
Greenville City Schools

Penny Riley, RN, BSN
Summit County Health Department

Heidi Steiner, RN, M.Ed., NCSN
Wooster City Schools
Appendix

Sample Letters to Parent/Guardian

Sample letter #1

Dear (Parent/Guardian),

Your child was recently weighed and measured in our school to determine how he/she is growing. Your child's weight was found to be low/high for his/her height and age. This does not necessarily mean your child is underweight/overweight but may be at risk for this condition. The best person to evaluate your child's weight status is his/her regular physician.

We encourage you to make sure your child has annual medical exams by a physician. The doctor should weigh and measure your child, may ask questions about growth since birth and may ask about the height and weight of biological relatives. Your doctor is a good resource for advice about nutrition and physical activity. If you do not have health insurance or access to health care, please contact us for information about possible health care services.

Please do not put your child on a weight gain/loss diet. Instead, we encourage good nutritional practices and daily physical activity. If you have any questions or would like information on available community resources, please do not hesitate to call me at ____________________________.

Sincerely,

_____________________________  _______________________
School Nurse                                      Date
Sample letter #2

Dear Parent or Guardian:

Your child's growth is important because it is an indicator of overall health. A child's growth is determined by monitoring a child's height and weight over time. As part of our continuing effort to help ensure our students' health, we have measured your child's height and weight. The results are recorded below:

<table>
<thead>
<tr>
<th>Height</th>
<th>Weight</th>
<th>BMI-for-Age Percentile</th>
</tr>
</thead>
</table>

Body mass index (BMI) is a measure of body heaviness and an indirect measure of body fat. According to the Centers for Disease Control and Prevention, a BMI-for-age at or above the 85\textsuperscript{th} percentile, or lower than the 5\textsuperscript{th} percentile may be a health risk for your child. Your child's BMI-for-age was in the following percentile grouping:

- [ ] At or above the 95\textsuperscript{th} percentile (considered overweight)
- [ ] 85\textsuperscript{th}–94\textsuperscript{th} percentile (considered to be at risk for becoming overweight)
- [ ] 5\textsuperscript{th}–84\textsuperscript{th} percentile (considered average or typical, most children are in this group)
- [ ] Below the 5\textsuperscript{th} percentile (considered underweight)

If your child is at or above the 95\textsuperscript{th} percentile or below the 5\textsuperscript{th} percentile, we recommend you contact your family doctor to discuss your child's health. If your child is between the 85\textsuperscript{th} and 94\textsuperscript{th} percentile, bring these findings to your family doctor's attention at your child's next scheduled visit.

If you have questions, do not have a doctor or health insurance for your child, would like information on available community resources or would like to discuss these results with the school nurse, please call ____________________________

<table>
<thead>
<tr>
<th>School Nurse</th>
<th>Date</th>
</tr>
</thead>
</table>

Adapted from letter developed by Nancy Mosca, PhD, RN
**Height and Weight Screening Form**

<table>
<thead>
<tr>
<th>Name</th>
<th>DOB</th>
<th>Wt</th>
<th>Ht</th>
<th>BMI</th>
<th>BMI %ile</th>
<th>AR</th>
<th>O/U</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

AR = At Risk of Overweight (≥85th–94th %ile) O = Overweight (≥95th %ile)
U = Underweight (<5th %ile)
BMI formula: (Weight in pounds/height in inches/ height in inches) times 703 = BMI
# Body Mass Index Tracking Tool

<table>
<thead>
<tr>
<th>Student name</th>
<th>Sex</th>
<th>DOB</th>
<th>Height</th>
<th>Weight</th>
<th>BMI</th>
<th>BMI %</th>
<th>Result Letter Sent</th>
<th>Refer (Y/N)</th>
<th>(1) Follow-up</th>
<th>(2) Completed Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

**NOTES:** (1) Follow-up may be by letter, telephone, visit, etc. (2) Use to track outcomes or completion of other services.
Facts and Concerns About School-Based BMI Screening, Surveillance and Reporting

What Is Mandatory School-Based BMI Screening, Surveillance and Reporting?

A number of states¹ and school districts have enacted legislation and policy that requires schools to measure and report a student's BMI via “BMI report cards” or “Fitnessgrams.” Some states have passed legislation requiring schools to measure BMI, but without a requirement to report this to parents. This screening and surveillance practice is often put into place as a perceived method for combating childhood obesity and seen as a way of promoting health. A January 2012 poll examined the possible association between school-based childhood obesity prevention programs and an increase in eating disorders among young children and adolescents. Following their children’s participation in the program, 30% of parents reported at least one worrisome behavior in their children that could be associated with the development of eating disorders⁴. Eating disorders are the deadliest of all mental illnesses⁵. As evidence of harm resulting from BMI screening and surveillance in schools emerges, some states and school districts are slowly beginning to rethink BMI screening and surveillance policies, but typically only after harm is done⁶.

What Is BMI?

BMI is the acronym for Body Mass Index, a measure of an individual's relative weight based on an individual's mass and height. BMI reporting is used in a wide variety of contexts as a way to assess how much an individual's body weight compares to what is considered medically desirable for a person of his or her height. BMI is well established as a poor way of measuring weight in young children, as it is influenced by issues such as muscle development. According to Centers for Disease Control and Prevention (CDC), “BMI is a number calculated from a child's weight and height. ... Although BMI is used to screen for overweight and obesity in children and teens, BMI is not a diagnostic tool⁶.” CDC also concludes, “It is important to remember, however, that BMI is not a direct measure of body fatness and that BMI is calculated from an individual's weight which includes both muscle and fat, some individuals may have a high BMI but not have a high percentage of body fat. For example, highly trained athletes may have a high BMI because of increased muscularity rather than increased body fatness.” Additionally, using BMI as a predictor of health is limiting, as “weight is only one factor related to risk for disease.”
Why Not Conduct BMI Screening and Surveillance in Schools?

There are numerous concerns associated with conducting BMI screening, surveillance and reporting in schoolsvi.

- **There is little data available on the efficacy of BMI screening and surveillance in schools**: According to CDC, "Little is known about the outcomes of BMI measurement programs, including effects on weight-related knowledge, attitudes, and behaviors of youth and their families. As a result, no consensus exists on the utility of BMI screening programs for young peoplevii." Additionally, little is known about the impact such interventions have on changing behaviors related to weight and physical activity.

- **Schools are not "medical homes"**: The American Academy of Pediatrics recommends that BMI should only be conducted by family physicians "... as part of normal health supervision within the child’s medical home" (aka: by their primary care provider). Traditionally, schools are not a child’s medical homeviii.

- **Unless safeguards are solidly in place, a risk of harm exists**: Individuals, including children, who are simply told they are too fat can be at risk for using dangerous weight loss strategies such as the abuse of diet pills, fasting, and/or extreme caloric restriction. Furthermore, children who are overweight/obese are still at risk for eating pathology, although it is often overlookedix.
  
  - Unfortunately, there is currently no safeguard in place to fully ensure that the person doing the testing is free of weight-biasx; not suffering body image issues themselves; not suffering an eating disorder themselves; able to support a child’s emotions upon hearing their BMI; ethically able to address questions about health. Further, often the person doing the screening is an older student, parent volunteers or a school gym teacher and all too often BMI numbers are called out in front of a group of studentsxi.

- **Weight is not a behavior**: A child’s weight is not a reliable proxy for health or fitness and focusing on modifying weight may not be as effective as modifying behaviors. Prevention programs should thus target behaviors that promote a healthy lifestyle in a way that is weight-neutral. Interventions should focus not only on providing opportunities for appropriate levels of physical activity and healthy eating, but also promote self-esteem, body satisfaction, and respect for body size diversityxii.

- **Screenings give information without meaningful strategies**: On a daily basis, the public is bombarded with contradictory information about healthy eating, healthy weight and strategies for weight loss. How do parents navigate all this data and properly guide their children? Little is known about how parents react to the screening information. Some parents may focus on the child’s weight as another important arena for achievement and encourage diets and other weight loss strategies that could inadvertently be harmful. There is no assurance that the communication of screening information and results will be done in a respectful and inclusive manner. Mandatory BMI reporting forces parents to walk the fine line between encouraging healthy eating and risky weight loss strategies that can put the child at risk for developing negative body image and eating disorder symptoms.
Why Not Conduct BMI Screening and Surveillance in Schools? cont.

- **BMI report cards may put children at risk for bullying and teasing:** Bullying has become an increasingly notable problem for schools and parents alike. BMI reporting is likely to promote weight and fat-related stigma where children are at risk for being called names and experiencing criticism and subsequent shame related to their appearance. Research shows that being fat is a common reason for taunting and teasing. Currently there is no assurance that BMI screening is taking place in a context where size discrimination is not tolerated. In addition to contributing to decreased self-esteem, such teasing can increase one’s risk of developing an eating disorder. Prospective studies show that weight-related teasing is associated with binge eating and other eating disordered behaviors, lower levels of physical activity and increased weight gain over time. Thus, ensuring a school environment where all children are supported in feeling good about their bodies is essential to promoting health in youth.

- **BMI reporting may adversely impact children’s self-esteem:** BMI reporting and Fitnessgrams have not been shown to increase psychological health. Such assessments provide potential detriment to students’ self-esteem and can lead to dangerous peer-based comparisons and increased body dissatisfaction.

**Requests for Solutions:**

- CDC should work with experts in the field of eating and body image disorders to update their guidelines for BMI screening and surveillance in schools;
- CDC should conduct a study and issue a report on the impacts on children in schools that have already existing BMI screening and surveillance programs and Fitnessgrams; and
- CDC should provide additional guidance and best practices so that schools can administer BMI screening and surveillance without inflicting unintended harm on students.

“Facts and Concerns About School-Based BMI Screening, Surveillance and Reporting”

Arkansas implemented a statewide BMI screening and surveillance program in 2003 (State of Arkansas, 84th General Assembly, Regular Session. Act 1220 of 2003. HB 1583. 2003); In California, students participate in physical fitness testing that assesses BMI along with other fitness-related variables (California Department of Education. 2005 California physical fitness test: report to the governor and legislature. Sacramento, CA: California Department of Education; 2005).


At least every 62 minutes someone dies as a direct result from suffering an eating disorder (meaning that every single day at least 23 people will die as a direct result of suffering an eating disorder. Source: Scott J. Crow, M.D. and Sonja Swanson, Ph.D.; Eating disorders are a source of significant morbidity and mortality among youth in the United States. Source: Swanson SA, Crow SJ, Le Grange D, Swardson J, Merikangas KR. Prevalence and Correlates of Eating Disorders in Adolescents: Results From the National Comorbidity Survey Replication Adolescent Supplement. Arch Gen Psychiatry 2011;68:714-23.

Senator Kim Hendren, an original supporter of the Arkansas legislation, introduced an act that would repeal the requirement, noting that since the policy's enactment some athletes are being incorrectly labeled as overweight; Maine enacted legislation in 2005 to address childhood obesity only after an amendment was added that eliminated a provision requiring BMI testing; Georgia introduced legislation in 2005 to mandate BMI testing and parental notification however a sponsor of the bill, Representative Stephanie S. Buckley, chose to not pursue the legislation after receiving voluminous concern from constituents that the measure could harm students' self-esteem; Maryland's measure to implement mandatory BMI testing of all students failed after receiving a negative report from the Education, Health and Environmental Affairs Committee; and in June 2014, a city in New York decided to rethink its policy on the delivery of Fitnessgrams—though they vowed to continue BMI testing (Source: http://nypost.com/2014/05/24/city-to-rethink-distribution-of-schoolkids-fitnessgrams/)

http://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/about_childrens_bmi.html

For one example, please see http://nypost.com/2014/05/22/nyc-says-this-girl-is-fat/


Such assessments provide potential detriment to students' self-esteem and can lead to dangerous peer-based comparisons and practices such as Fitnessgrams represent "fat-shaming," associated with the development of dieting and disordered eating practices. Source: The Academy of Eating Disorders: www.aedweb.org/web/downloads/BMI_and_Fitnessgrams_Release_FNL.pdf

The Academy of Eating Disorders opposes approaches that may be blaming, shaming or harmful and they urge media, health-care, educational and governmental organizations to focus on health-promoting policy and behavior. The AED further opposes narrow focus on body weight and BMI, which may promote shaming and weight-based stigma. The AED has published guidelines to focus on health obesity without doing harm: Child Obesity Position Statement: www.aedweb.org/web/index.php/23-get-involved/position-statements/90-aed-statement-on-body-shaming-and-weight-prejudice-in-public-endeavors-to-reduce-obesity-4


Ibid.

Impacts including, but not limited to: self-esteem, body bullying, incidence of eating disordered behaviors and eating disorders, and health improvements or negative health consequences.
Executive Summary

BMI

Body Mass Index Measurement in Schools

\[ BMI = \frac{\text{weight (kg)}}{\text{height (m)}^2} \]
As the United States continues to search for answers to the growing problem of obesity among children and adolescents, much attention has focused on body mass index (BMI) measurement programs in schools. The BMI is the ratio of weight to height squared. It is often used to assess weight status because it is relatively easy to measure and it correlates with body fat. 5-9

In 2005, the Institute of Medicine called on the federal government to develop guidance for BMI measurement programs in schools. 10 With guidance from an expert panel, the Centers for Disease Control and Prevention (CDC) developed a report to help inform decision-making on school-based BMI measurement programs. This Executive Summary presents an overview of the report, which was published in the December 2007 issue of the Journal of School Health. The report describes the purposes of BMI measurement programs, examines current practices, reviews existing research, summarizes the recommendations of experts, identifies concerns about school-based programs, and provides guidance on BMI measurement programs, including a list of safeguards and ideas for future research.

BMI measurement programs in schools may be conducted for surveillance and screening purposes. BMI surveillance programs assess the weight status of a specific population (e.g., students in an individual school, school district, or state) to identify the percentage of students who are potentially at risk for weight-related health problems. Surveillance data are typically anonymous and can be used for many purposes, including identifying population trends and monitoring the outcomes of interventions. BMI screening programs assess the weight status of individual students to identify those at risk and provide parents with information to help them take appropriate action.

Some states have initiated BMI measurement programs in recent years. Arkansas, for example, implemented a statewide BMI screening and surveillance program in 2003 (State of Arkansas, 84th General Assembly, Regular Session. Act 1220 of 2003. HB 1583. 2003). In California, students participate in physical fitness testing that assesses BMI along with other fitness-related variables. 11

From 1980 to 2012, the percentage of youth who were obese* increased from 7% to nearly 18% in children (6-11 years) and 5% to nearly 21% in adolescents (12-19 years). 1-4

*These youth were classified as "overweight" in the article cited; the classification was changed to "obesity" to reflect the June 2007 recommendations from the Expert Committee on the Assessment, Prevention, and Treatment of Child and Adolescent Overweight and Obesity
Little is known about the outcomes of BMI measurement programs, including effects on weight-related knowledge, attitudes, and behaviors of youth and their families. As a result, no consensus exists on the utility of BMI screening programs for young people. The U.S. Preventive Services Task Force concluded that insufficient evidence exists to recommend for or against BMI screening programs for youth in clinical settings as a means to prevent adverse health outcomes; however, the American Academy of Pediatrics (AAP) recommends that BMI should be calculated and plotted annually on all youth as part of normal health supervision within the child's medical home. The Institute of Medicine recommends annual school-based screening.

BMI screening meets some of the criteria established by the AAP for determining whether school-based screening should be implemented for any pediatric health condition: obesity is an important and highly prevalent condition; BMI is an acceptable measure; and schools are a logical measurement site because they reach virtually all youth. However, BMI screening programs typically do not meet other AAP criteria: effective treatments for obesity are not available; research has not established the effectiveness and cost-effectiveness of BMI screening programs, and communities typically do not have resources in place to help at-risk individuals access treatment services. More evaluation is needed to determine whether BMI screening programs are a promising approach for addressing obesity among children and adolescents.
| Criteria for a Successful Screening Program in Schools |

<table>
<thead>
<tr>
<th>Disease</th>
<th>Undetected cases must be common or new cases must occur frequently and the disease must be associated with adverse consequences.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>Effective treatment must be available and early intervention must be beneficial.</td>
</tr>
<tr>
<td>Screening Test</td>
<td>The test should be sensitive, specific, and reliable.</td>
</tr>
<tr>
<td>Screener</td>
<td>The screener must be well trained.</td>
</tr>
<tr>
<td>Target Population</td>
<td>Screening should focus on groups with high prevalence of the condition/disease in question or in which early intervention will be most beneficial.</td>
</tr>
<tr>
<td>Referral &amp; Treatment</td>
<td>Those with a positive screening test must receive a more definitive evaluation and, if indicated, appropriate treatment.</td>
</tr>
<tr>
<td>Cost / Benefit</td>
<td>The benefit should outweigh the expenses (i.e., costs of conducting the screening and any physical or psychosocial effects on the individual being screened).</td>
</tr>
<tr>
<td>Site</td>
<td>The site should be appropriate for conducting the screening and communicating the results.</td>
</tr>
<tr>
<td>Program Maintenance</td>
<td>The program should be reviewed for its value and effectiveness.</td>
</tr>
</tbody>
</table>
A number of concerns have been expressed about school-based BMI screening programs, including that they might stigmatize students and lead to harmful behaviors. Other concerns are that these programs might be ineffective, waste scarce health promotion resources, and distract attention from other school-based obesity prevention activities. More research is needed to assess the validity of these concerns. BMI surveillance programs are less controversial, because they do not involve the communication of sensitive information to parents and do not require individualized follow-up care for students identified to be at risk. Schools that initiate BMI measurement programs should have in place a safe and supportive environment for students of all body sizes and a comprehensive set of science-based strategies to promote physical activity and healthy eating. In addition, BMI screening programs should ensure that parents receive a clear and respectful explanation of the BMI results and appropriate follow-up actions; and that resources are available for safe and effective follow-up.

To reduce the risk of harming students, BMI measurement programs should adhere to the following safeguards:

1. Involves the program, school staff, and community members and other relevant partners.

2. Staff in administering the program.

3. Implementation will be led by a highly qualified staff person, such as a school nurse.

4. Establish safeguards in patient consent.

5. Obtain and use accurate equipment.

6. Accurately calculate and interpret the data.

7. Adequate data collection and record keeping.

8. Monitoring BMI results to evaluate and adapt the program's effectiveness.

9. Regularly evaluate the program and its impact on student outcomes and unintended consequences.