

**Framingham State College**  
**DGCE/OPDCE**

18.794 Body Mass Index as a Weight Assessment Tool in Schools

- Course Information:
- Course Description: An examination of child and adolescent obesity for school nurses and other school professionals. Focus is on the calculation, interpretation and usefulness of Body Mass Index (BMI) as an assessment tool and effective ways of communicating BMI assessment to families. School-based case studies are used.
- Course Objectives:
  - Students will learn about recent trends in the childhood obesity epidemic and associated risks of the increasing prevalence
  - Students will learn principles of proper weighing and measuring and body mass index (BMI) calculation
  - Students will learn how to plot and interpret BMI for age and use the CDC growth charts as a screening tool for overweight
  - Students will learn effective ways to communicate students' BMI information to parents and guardians
- Course Expectations: This on-line course is NOT a self paced course. Students are expected to work on-line each week to complete the assignments by the due dates. Late assignments can and will be held against students. This participation is crucial to make the on-line class run smoothly. In lieu of exams, students will be expected to complete a final project to be submitted the last day of class. Class assignments will include participation in on-line discussions.
- Course Content/Outline:
  - Week 1: Background information and statistics on childhood obesity epidemic, web-based readings on the role of the school in treatment and prevention.
  - Week 2: Information on the use of body mass index and how to properly weigh and measure students, with some information on discreteness and confidentiality, and how to calculate BMI.
  - Week 3: How to properly interpret BMI and use BMI as a screening tool. Terminology and other differences in using BMI with children and adolescents vs. adults will be discussed.
  - Week 4: What to do with the information? Students will learn about what other states are doing, and also review recent research around best practices for communicating this information to parents and guardians.

- Course Texts and Materials: There is no required text for this course. Readings will include articles and publications accessible on the Internet.
- Course Requirements:

**Week 1:**

**Required Reading:**

<http://www.healthinschools.org/sh/obesityfacts.asp>

This article provides an overview on the current research related to overweight and physical inactivity in children. Please read all 4 sections: Overview, Health Consequences of Childhood Obesity, Physical Activity and Schools, and Nutrition and Schools.

<http://www.actionforhealthykids.org/resources.php>

This link contains an excellent list of free resources and fact sheets on a variety of topics around healthy eating and physical activity in schools. Please read **Nutrition, Physical Activity and Achievement**. Review as many as you need in order to give a thoughtful response to the Discussion Board assignment.

**Discussion Board:**

Do you have concerns about the eating and exercise habits of children in your school? What trends have you noticed? Based on your readings, what factors do you think contribute most to the increasing prevalence of overweight in children? Are these factors likely to change? What can and should be done to address these factors?

Answer the above questions when summarizing your thoughts on this topic. In addition, I would like you to respond to at least one other student's posting by commenting on what they wrote and adding a new thought to expand that idea.

**Assignment 1:**

1. Complete training module: Overview of the CDC growth charts  
<http://www.cdc.gov/nccdphp/dnpa/growthcharts/training/modules/module2/text/contents.htm>
2. Complete written review (link will be provided, see below for assignment)

**Week 2:**

**Required Reading:**

<http://www.emc.cmich.edu/pdfs/Healthy%20Weight.pdf>

The Michigan Department of Education in cooperation with the Michigan Department of Community Health, the Governor's Council on Physical Fitness, Health and Sports, and the Michigan Fitness Foundation developed *The Role of Michigan Schools in Promoting Healthy Weight*. The paper was developed to be a working model to help administrators assess their school's environment and to establish or review district guidelines and policies. It includes tools to help create safe and supportive schools where students can be physically active and benefit from a healthy nutritional environment. In addition to prevention, the paper includes guidelines for schools that want to provide support for overweight students.

[http://nature.berkeley.edu/cwh/PDFs/BMI\\_report\\_cards.pdf](http://nature.berkeley.edu/cwh/PDFs/BMI_report_cards.pdf)

"Weighing the risks and benefits of measuring BMI in the school setting." Developed by Pat Crawford, Gail Woodward-Lopez and Joanne Ikeda at the Center for Weight and Health, University of California Berkeley.

**Discussion Board:**

What role do you think schools should play in combating the public health problems of overweight and poor nutrition? What are the risks of addressing these issues in schools? What steps has your school taken to address the problem?

Answer the above questions when summarizing your thoughts on this topic. In addition, I would like you to

respond to at least one other student's posting by commenting on what they wrote and adding a new thought to expand that idea.

**Assignment 2:**

Complete training module: Using the BMI-for-age growth charts

<http://www.cdc.gov/nccdphp/dnpa/growthcharts/training/modules/module1/text/contents.htm>

1. Complete written review (link will be provided, see below for assignment)

**Week 3:**

**Required Reading:**

[http://www.nasbe.org/Standard/17\\_Dec2004/Wechsler2.pdf](http://www.nasbe.org/Standard/17_Dec2004/Wechsler2.pdf)

This link contains information from the December 2004 issue of NASBE's (National Association of State Boards of Education) Education Standard on "The Obesity Epidemic: What Schools Can Do." The lead article, "The Role of Schools in Preventing Childhood Obesity," was co-authored by several CDC staff members including Dr. Howell Wechsler, the acting director of the Division of Adolescent and School Health.

<http://www.healthinschools.org/sh/overweight.asp>

From June 2 to July 28, 2005 The Center for Health and Health Care in Schools attached a 3-question survey to news and grant alerts posted on its web site. The purpose of the survey, "Childhood Overweight and School Health Services" was to find out what types of health services schools are provided to students and their families to combat the growing problem of childhood overweight. This link summarizes survey results.

**Discussion Board:**

Based on your readings, do you think it is appropriate to weigh and measure students and calculate BMI in the school setting? How is your school addressing this controversy? Do you weigh and measure your students? If so, do you send information home to parents? If so, please post a sample letter. Do you send information home to the parent of all children or only those of overweight children?

Answer the above questions when summarizing your thoughts on this topic. In addition, I would like you to respond to at least one other student's posting by commenting on what they wrote and adding a new thought to expand that idea.

**Assignment 3:**

1. Complete training module: Overweight Children and Adolescents: Recommendations to Screen, Assess, and Manage  
<http://www.cdc.gov/nccdphp/dnpa/growthcharts/training/modules/module3/text/contents.htm>
2. Complete written review (link will be provided, see below for assignment)

**Week 4:**

**Required Reading:**

<http://panaonline.org/programs/khz/screening/>

**Growth Screening Communication Kit** developed by the Pennsylvania Advocates for Nutrition and Activity (PANA). Pennsylvania Advocates for Nutrition and Activity (PANA) is a statewide organization supported by a coalition of more than 500 public, private, academic, professional and volunteer groups, working to promote policies and environments that support healthy eating and activity.

[http://www.achi.net/BMI\\_Info/Docs/Clinician\\_Guide\\_to\\_Weight\\_Problems.pdf](http://www.achi.net/BMI_Info/Docs/Clinician_Guide_to_Weight_Problems.pdf) and

[http://www.achi.net/BMI\\_Info/health\\_letter.asp](http://www.achi.net/BMI_Info/health_letter.asp)

In 2003, the Arkansas General Assembly and Governor Mike Huckabee passed Act 1220. This is a multi-pronged initiative with one goal in mind: to improve the health of Arkansas children. One component of this act focuses on measuring and reporting the Body Mass Index of each child to their parents or guardians in Arkansas public schools.

**Discussion Board:**

What are the obstacles to addressing overweight and poor nutrition in schools? To what extent is your school prepared to make changes based on the data you collect? What resistance do you expect to encounter? How do you plan to overcome that resistance?

**Assignment:**

1. Final Project (link will be provided, see below for assignment)

- Grading Criteria:

- Discussion Boards (10 points each) 40%
- Weekly Assignments (10 points each) 30%
- Final Project (30 points) 30%

## Assignment 1

1. In NHANES III, why were the weights of children 6 years of age and older excluded from the growth reference used to develop the CDC Growth Charts?
  - a. Measurement errors in NHANES III make the data invalid.
  - b. The smaller sample size of older children in NHANES III made the curves statistically unreliable.
  - c. There was a decrease in the prevalence of overweight among children aged 6 years and older which would change the growth reference.
  - d. There was an increase in the prevalence of overweight among children aged 6 years and older in NHANES III data compared to previous data, which would have changed the growth reference by classifying fewer children and adolescents as overweight or at risk of overweight.
2. Which anthropometric index considers a child's weight, height and age?
  - a. Weight-for-stature
  - b. Weight-for-length
  - c. BMI-for-age
  - d. Weight-for-age
3. Percentiles are used to rank an individual on a given growth chart and indicate the percent of the reference population of the same gender the individual equals or exceeds. True or false.

Using the appropriate growth chart ([www.cdc.gov/growthcharts](http://www.cdc.gov/growthcharts)) to answer the following questions:

4. What is the percentile weight-for-age for a 10 year old boy weighing 32 kg?
5. What is the percentile stature-for-age for a 16 year old girl that is 171 cm?
6. What is the percentile weight-for-age for a 6 year old girl weighing 16 kg?
7. What is the percentile stature-for-age for a 14 year old boy that is 145 cm?
8. What nutritional risk does this percentile indicate?
9. What is the percentile weight-for-age for a 13 year old girl weighing 30 kg?
10. What nutritional risk does this percentile indicate?

## Assignment 2

1. BMI is age specific for children and adolescents, ages 2 to 20. Thus, BMI-for-age is the measure used to classify children and adolescents as underweight or overweight. True or false.
2. Which statement does not accurately describe an advantage of using BMI-for-age to screen for overweight and underweight in children and adolescents?
  - a. BMI-for-age can be used to track overweight from childhood into adulthood
  - b. BMI-for-age correlates well with clinical risk factors for cardiovascular disease
  - c. BMI-for-age measures body fat
  - d. BMI-for-age provides a reference for adolescents not previously available
3. Calculate the BMI of a student who weighs 34.5 pounds and is 41 inches tall.
4. If this student is a 5 year old girl, what is her percentile BMI-for-age?
5. Calculate the BMI of a student who weighs 126 pounds and is 62 inches tall.
6. If this student is a 13 year old boy, what is his percentile BMI-for-Age?
7. What nutritional risk does this percentile indicate?
8. Calculate the BMI of a student who weighs 54 kg and is 140 cm tall.
9. If this student is an 11 year old girl, what is her percentile BMI-for-Age?
10. What nutritional risk does this percentile indicate?

### Assignment 3

1. What are 3 common medical complications of overweight?
2. All overweight and at risk for overweight children should lose weight. True or false.
3. The primary goal of a program to manage uncomplicated overweight is healthy eating and physical activity. True or false.
4. What is the period of greatest risk for developing adult obesity?
5. What is the BMI of a 10 year old boy who weighs 120 pounds and is 55 inches?
6. What is his percentile BMI-for-Age?
7. If he has no medical complications, what would be his weight management recommendation weight loss or weight maintenance?
8. What is the BMI of a 6 year old girl who weighs 26 kg and is 112 cm?
9. What is her percentile BMI-for-Age?
10. If she has no medical complications, what would be her weight management recommendation: weight loss or weight maintenance?

## Final Project

Directions: Use the recommended readings to answer the following question/ complete the following questions.

Below each item, list the name and page number of the reference you use to answer the question. For example: Action for Healthy Kids Link to Learning handout, page 2.

1. You have decided to weigh and measure students in your school. Which students will you weigh and measure? Provide rationale.
2. What logistical considerations should you make when weighing and measuring students?
3. Are there things you should never say when weighing students? Answer the question by providing 3 examples and a brief explanation describing why these statements should be avoided.
4. What should be said to students being weighed and measured? Answer the question by providing sample dialogue.
5. Develop a protocol for weighing and measuring students. The protocol must include outreach to parents and student/familial follow up. Please provide rationale for your decisions and the factors that influenced the development of your protocol.
  - a. The outreach to parents must include a letter. Please attach.
  - b. The outreach to parents must include at least one piece of educational/supporting material. Please attach.