Over the past 3 decades, overweight, defined as body mass index (BMI) of $\geq$85th percentile, and obesity (BMI $\geq$95th percentile) have increased dramatically in children and adolescents across the United States (Figure 1).1-3 Minority and low-socioeconomic-status groups are disproportionately affected at all ages.4

In New York City (NYC), 43% of elementary school children are at an unhealthy weight; more than half of these children are obese.5 This is a much larger proportion than expected based on the national rate. In our public high schools, 28% of the students are either overweight or obese.6

Overweight children have many risks, including hyperlipidemia,7 hypertension,8 type 2 diabetes,9-12 social stigmatization, and psychosocial difficulties.13 Providers should monitor weight status and consistently offer counseling on healthy eating and exercise to all children and adolescents, even those who are at a healthy weight.

**FIGURE 1. PREVALENCE OF OBESITY (BMI $\geq$95TH PERCENTILE) AMONG UNITED STATES CHILDREN AND ADOLESCENTS: 1976-2006**

- Assess all children and adolescents for overweight and obesity using BMI percentile-for-age to identify at-risk patients early.
- Educate all children, adolescents, and their families about healthful eating and physical activity, and reinforce messages at each visit.
- Work with families to set realistic goals for healthy eating and exercise.
ASSESSING WEIGHT STATUS

A child’s weight status cannot be gauged by his or her appearance but is determined by BMI percentile-for-age standards established in 2007. For children younger than 2 years, overweight is defined as weight-for-length >95th percentile-for-age. For children older than 2 years, weight status is based on gender-specific BMI percentile-for-age:

- Overweight: BMI percentile ≥85 but <95.
- Obese: BMI percentile ≥95.

Take accurate height and weight measurements for each child and calculate BMI using:

1. The Centers for Disease Control and Prevention’s (CDC’s) Pediatric BMI Online Calculator (http://apps.nccd.cdc.gov/dnpabmi/Calculator.aspx),
2. Your electronic health records system (if applicable), or
3. BMI = Weight (kg)/Height (m)^2 or
   BMI = [Weight (lb)/Height (in)^2] x 703.

Plot the BMI on the gender-specific CDC growth chart (Figure 2) to determine the weight category (Resources). Consider BMI percentile-for-age in the context of the child’s history: rapid weight gain or upward percentile crossing may indicate the need for a weight-management plan. Evaluate all children and adolescents for risk factors that may lead to development or persistence of overweight (Table 1), asking detailed questions about their usual dietary habits and physical activity level (see box on page 43).

**FIGURE 2. CENTERS FOR DISEASE CONTROL AND PREVENTION AGE- AND SEX-SPECIFIC PEDIATRIC BMI CHARTS**

*Source: Adapted from www.cdc.gov/nchs/nhanes/growthcharts/charts.htm#Set%201.
PREVENTING OVERWEIGHT AND OBESITY

Recommend healthy behaviors to all children, adolescents, and their families. During the perinatal period and infancy, prescribe and support breastfeeding exclusively for the first 6 months of life: infants who are not breastfed have a higher risk of being overweight in late childhood and adolescence. Encourage parents to model healthy behaviors to help establish good eating and recreational habits for the whole family (Table 2). At each visit, reinforce these messages by praising families for healthy behaviors and discouraging unhealthy habits.

HELPING THE OVERWEIGHT, OBESE, OR AT-RISK CHILD

Consider comorbidities. Be watchful for disorders that can co-occur with overweight or obesity—such as type 2 diabetes, hypertension, hyperlipidemia, asthma, gastrointestinal disorders, and orthopedic problems—and address appropriately.

Communicate your concerns. Communicate sensitively and nonjudgmentally about weight and related behaviors with all children and their families, regardless of the child’s weight status (see box on page 44). Use nondirective language and reflective listening. Focus on the challenges of reaching and maintaining a healthy weight in a society and culture that promotes unhealthy eating, rather than on the individual’s behavior. Be sensitive to cultural values and beliefs about what constitutes a healthy weight and desirable foods.

Some things you may say to parents are:
• Your child is not at a healthy weight. What concerns, if any, do you have about her weight?

Ask ALL Patients About Health Behaviors:
• How many TIMES per DAY do you drink soda, other sweetened beverages, or juice rather than water or low-fat milk?
• How many HOURS per DAY do you watch TV, play video games, or use a computer for nonhomework activities?
• How many TIMES per WEEK do you eat “fast food” (eg, McDonald’s, Burger King, pizza, KFC?)
• How many TIMES per WEEK do you snack on chips or candy?
• How many TIMES per DAY do you eat fruits and vegetables (excluding French fries)?
• How many TIMES per WEEK are you physically active (eg, walking, running, biking, playing basketball) after school or on weekends?
It seems like your child might be someone who gains weight easily. If a child or family gains weight easily, they may have to work harder on a healthy lifestyle than others.32

Some things you may say to children and adolescents are:

- Do you find your eating is out of control sometimes?33
- Unhealthy food is everywhere—do you find that it’s hard to resist?

Collaborate on a plan. Involving the parents is essential in helping a child embrace a healthier way of living.34-36 Offer parents concrete ideas for establishing healthy behaviors for the whole family, such as drinking water, walking together whenever possible, joining a gym together, or eating at home together more often.32 Tie healthful messages to something the child cares about. Explain how healthier eating and exercise habits can enhance their performance in sports, academics, or other valued activities, such as being able to participate more actively with peers.15

### TABLE 2. RECOMMENDATIONS FOR HEALTHY EATING AND PHYSICAL ACTIVITY15,27,30,31

- Serve water and low-fat milk at meals; keep tap water in the fridge. Reduce or eliminate sugar-sweetened beverages.
- Be active and encourage your children to be active. Children need to be active at least 60 minutes a day.
- Find activities that you and your children can enjoy doing together as a family, like walking briskly, running, or playing basketball. Physical activity can be done in multiple short intervals.
- Serve more vegetables and fruits.
- If juice is consumed at all, limit to 4 to 6 oz (1/2 glass) of 100% juice per day.
- Eat less fatty food, fast food, candy, and salty snack food (eg, chips). Offer fresh fruit as snacks.
- Pay attention to portion sizes. Serve smaller portions of everything except vegetables.
- Sit down and eat together as a family.
- Do not watch or allow television viewing while eating meals and snacks.
- Reduce television watching, video games, and computer time for everyone.
- Do not allow children <2 years old to watch television.
- Do not use food as a punishment or reward.

Healthy behaviors benefit all family members, regardless of weight status.

### HOW TO COMMUNICATE CLEARLY AND SENSITIVELY WITH FAMILIES28

1. Acknowledge the societal nature of the problem.
2. Provide clear and accurate information.
3. Emphasize the strengths of the child.
4. Show concern rather than professional detachment.
5. Communicate empathy and support.
6. Invite parents’ views, perceptions, and beliefs.
7. Discourage parents and children from blaming themselves.
8. Separate the problem from the child—interact in ways that externalize it.
9. Focus on solutions.
For most overweight children, the recommended goal is weight maintenance during linear growth rather than weight loss. Set one or more realistic, achievable goals. Often, the most feasible goal is changing beverage intake to reduce or completely avoid sugar-sweetened beverages. Suggest incremental changes, such as cutting back on TV rather than eliminating it completely. Use the same approach for physical activity: a teenager who has never exercised might start with 10 minutes several times per week and increase the goal over time. Make a record of the family’s goals and give them a copy to take home (see sample goal sheet below). At each visit, ask about their progress and praise their successes.

**Involve the community as a partner.** Be aware of and refer the family to school- and community-based resources that support the pursuit of healthful lifestyles and weight control (Resources).

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**HEALTHY WEIGHT GOAL SHEET**


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**Intensive interventions.** Some children who are obese will require more intensive interventions, including referrals to a dietitian and/or other community support services for more intensive diet and lifestyle support. In certain severe cases, where an adequate trial of such efforts has failed, referral for assessment for medications or surgery may be warranted. In addition, overweight or obese adolescents who binge and purge should be evaluated for eating disorders by specialists. Referral to a clinical specialist at a pediatric tertiary weight management center may be indicated in the following situations:

- Lack of response to weight management in the primary care office.
- Comorbidities that are concerning.
- History or examination suggesting a genetic weight disorder.
- Family history of severe obesity.

**SUMMARY**

Assess BMI for all children and adolescents and identify those at risk for overweight and obesity early. Work collaboratively with patients and families to set realistic goals for healthful eating and exercise for everyone and follow up at every visit. Refer families to information resources, community support services, and, if necessary, weight-management specialists. 

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- Get health care provider news.
- Register with the Health Alert Network.
- Access NYC Health Department Action Kits for clinical tools, resources for providers, and patient education materials on important public health topics. Check the page for the new Pediatric Obesity Action Kit.
RESOURCES

For Health Care Providers
• American Academy of Pediatrics, Childhood Overweight and Obesity site:
  www.aap.org/obesity/index.html
  Coding Fact Sheet:
  www.aap.org/obesity/pdf/ObesityCodingFactSheet0208.pdf
• CDC Clinical Growth Charts:
  www.cdc.gov/nchs/about/major/nhanes/growthcharts/clinical_charts.htm
• Maternal Child Health Library: Overweight and Obesity in Children and Adolescents, Knowledge Path:
  www.mchlibrary.info/KnowledgePaths/kp_overweight.html
• National Initiative for Children’s Healthcare Quality:
  www.nichq.org/childhood_obesity/index.html

BMI Percentile Calculation Tools
• CDC BMI Pediatric Online Calculator:
• CDC Growth Charts:
  www.cdc.gov/nchs/nhanes/growthcharts/clinical_charts.htm
• Palm BMI Software Download Site:
  www.statcoder.com/growthcharts.htm

Blood Pressure
• NIH Pediatric Blood Pressure Charts:
  www.cc.nih.gov/ccc/pedweb/pedstaff/bp.html
• Pediatric BP Calculator:
  www.pediatriconcall.com/fordoctor/pedcalc/bp.asp

For Parents
• CDC Fruits & Veggies—More Matters:
  www.fruitsandveggiesmatter.gov
• My Pyramid: www.mypyramid.gov
• Nemours Kidshealth Web Site for Parents:
  http://kidshealth.org/parent/nutrition_fit/index.html
• NHLBI We Can! (nutrition and exercise tips):
• Seattle Children’s Indoor Activity Tool Kit:
  www.seattlechildrens.org/child_health_safety/info/parents/indoor_activities.asp

For Children
• Kidnetic: www.kidnetic.com
• Nemours Kidshealth Web Site for Kids:
  http://kidshealth.org/kid
• Nourish Interactive:
  http://nourishinteractive.com/kids/kidsarea.html
• SmallStepKids:
  www.smallstep.gov/kids/flash/index.html

For Teens
• Nemours Kidshealth Web Site for Teens:
  http://kidshealth.org/teen
• NYC DOHMH TeenSpeak:
• Portion Distortion Online Quiz:
  http://hp2010.nhlbihin.net/portion/index.htm

Community Resources
• NYC DOHMH Physical Activity & Nutrition: Shape Up New York
  Step Out New York City
  Healthy Bodegas Initiative
  Health Bucks Program
• NYC Parks Department Be Fit NYC Activity Locator:
  www.nycgovparks.org/befitnyc
REFERENCES

Continuing Education Activity Helping Children Reach and Maintain a Healthy Weight

Objectives
At the conclusion of the course, the participants should be able to:
2. Learn current recommendations about healthful eating and physical activity for children, adolescents, and families to be provided at every visit.
3. Understand how to collaborate to set realistic behavioral change goals for children and adolescents to help them stay healthy in an obesogenic environment.

CME Accreditation Statement
The New York City Department of Health and Mental Hygiene is accredited by the Medical Society of the State of New York to sponsor continuing medical education for physicians. The New York City Department of Health and Mental Hygiene designates this continuing medical education activity for a maximum of 1.5 AMA PRA Category 1 credit(s). Each physician should only claim credit commensurate with the extent of their participation in the activity.

CNE Accreditation Statement
The New York City Department of Health and Mental Hygiene is an approved provider of continuing nursing education by the New York State Nurses Association, an accredited approver by the American Nurses Credentialing Center’s Commission on Accreditation. This CNE activity has been assigned code 6WXLFX-PRV-092.

1. Risk factors for the development or persistence of overweight in children include:
   - A. Rapid weight gain in infancy or early childhood.
   - B. Asthma.
   - C. Parental and grandparental obesity.
   - D. A and B.
   - E. A and C.

2. BL is an 11-year-old girl who is obese according to her BMI percentile. She will only eat while she watches television and her diet consists mainly of potato chips, pizza, and soda. Her mother is having trouble changing her eating habits. You can help by recommending all of the following EXCEPT:
   - A. Encourage the family to eat together at the dinner table as opposed to in front of the television.
   - B. Recommend more healthful alternatives for the foods she currently likes to eat.
   - C. Engage BL to set concrete, achievable goals for changes, such as cutting out soda, which she can make in the time until her next visit with her provider.
   - D. Recommend that BL stop eating potato chips, pizza, and soda today.

3. An 8-year-old with a BMI percentile-for-age of 92% should be encouraged to:
   - A. Achieve a 10% weight loss over 6 months.
   - B. Begin a weight-loss program that includes pharmacotherapy.
   - C. Develop healthy eating and exercise habits to maintain weight during linear growth.
   - D. Eat a very-low-calorie diet.

4. CJ is an 8-year-old who is being categorized for the first time as overweight. His clinician should do all of the following EXCEPT:
   - A. Cite the child’s and parent’s individual responsibility for the child having become obese.
   - B. Emphasize the child’s strengths.
   - C. Acknowledge the societal nature of the problem.
   - D. Identify a simple and feasible goal with the parents and/or child.

5. JD is a 5-year-old boy who weighs 21.2 kg and measures 110 cm. How would you categorize his BMI percentile?
   - A. Normal weight.
   - B. Overweight.
   - C. Obese.
   - D. Severely obese.

6. How well did this continuing education activity achieve its educational objectives?
   - A. Very well.
   - B. Adequately.
   - C. Poorly.

7. Will the content learned from this activity impact your practice?
   - A. Yes.
   - B. No.
   - C. Not applicable.

PLEASE PRINT LEGIBLY.
Name ______________________________ Degree ____________
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Date ______________ Telephone __________________________
E-mail address __________________________________________
Continuing Education Activity

This issue of City Health Information, including the continuing education activity, can be downloaded from www.nyc.gov/html/doh/html/chi/chi.shtml.

Instructions

Read this issue of City Health Information for the correct answers to questions. To receive continuing education credit, you must answer 4 of the first 5 questions correctly.

To Submit by Mail

1. Complete all information on the response card, including your name, degree, mailing address, telephone number, and e-mail address. PLEASE PRINT LEGIBLY.
2. Select your answers to the questions and check the corresponding boxes on the response card.
3. Return the response card (or a photocopy) postmarked no later than August 31, 2011, for CME or CNE credit.

Mail to: CME/CNE Administrator; NYC Department of Health and Mental Hygiene, 2 Lafayette Street, CN-65, New York, NY 10277-1632.

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