

CARE FOR KIDS



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The Middle Adolescent Health Maintenance Visit

By Ellen Link, MD, University of Iowa Children's Hospital

The major morbidities in adolescence are psychosocial and the adolescent health maintenance visit is an important time to help prevent these. Primary care providers play a very important role in promoting healthy lifestyles and preventing adverse outcomes.

The first priority of the visit always is to address patient and parent concerns. In addition, the Bright Futures Adolescence Expert Panel has given priority to discussion of the following topics. It may not be possible to include all of the topics at every visit, but they should be covered over the middle adolescent years. The topics include:

- 1 Physical growth and development (physical and oral health, body image, healthy eating, physical activity)
- 2 Social and academic competence (connectedness with family, peers, and community; interpersonal relationships; school performance)
- 3 Emotional well-being (coping, mood regulation and mental health, sexuality)
- 4 Risk reduction (tobacco, alcohol, or other drugs; pregnancy; STIs)
- 5 Violence and injury prevention (safety belt and helmet use, driving [graduated license] and substance abuse, guns, interpersonal violence [dating violence], bullying)

History can be obtained using a variety of styles. An adolescent pre-visit questionnaire can be helpful to begin the visit. The GAPS (Guidelines for Adolescent Preventive Services) questionnaire and the Bright Futures pre-visit questionnaire are both options. The GAPS forms include depression

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screening questions. The Bright Futures forms specifically list questions that screen for risk factors that would necessitate additional evaluation such as dyslipidemia. The GAPS forms are available on-line at www.ama-assn.org/ama/pub/physician-resources/public-health/promoting-healthy-lifestyles/adolescent-health/guidelines-adolescent-preventive-services.shtml.

The Bright Futures questionnaires can be purchased in the Bright Futures tool kit. More information is available at www.brightfutures.org.

Screening questionnaire responses that elicit concern can further be explored by asking questions that encourage in-depth discussion. Questions can be asked of both teens and parents. Much of the visit should occur with the teen alone, but observation of the parent-adolescent interaction can occur when both are in the room. It is particularly important to observe whether the parent is encouraging self-management and independence, and allowing the teen to answer questions.

In addition to observation and the physical exam, discussion with the teen offers an opportunity for developmental surveillance. Exploring whether the teen engages in a healthy lifestyle and forms caring, supportive relationships with family and peers is important.

Teens' sense of self-confidence, hopefulness, and well-being, as well as their ability to cope with stress, should be assessed.

The adolescent visit can be documented on the Child Health and Development Records available at www.iowaepsdt.org/ScreeningResources/Screening.htm. If these forms are completed, the provider will satisfy all of the requirements of an EPSDT well-child visit.

PHYSICAL EXAMINATION:

Include a complete physical examination at every health supervision visit. Particular attention should be given to the following:

- 1 Measure, plot, and calculate blood pressure, height, weight, and BMI.
- 2 Inspect skin for acne, *acanthosis nigricans*, atypical nevi, tattoos, piercings, and signs of abuse or self-inflicted injury.
- 3 Examine the spine and breasts. Assess Tanner Stage in females and look for gynecomastia in males.
- 4 Examine genitalia. In females, assess Tanner Stage and observe for signs of STIs. Perform a pelvic exam if clinically warranted. In males, assess Tanner Stage and observe for signs of STIs. Examine testicles for hydrocele, hernias, varicocele, or masses.

SCREENING:

Vision screens should be done universally during each period of adolescence or in anyone with vision complaints. Obtain a fasting lipoprotein profile in late adolescence or if risk factors are present and the teen has not previously been screened. Risk factors include parents or grandparents who had an MI, angina, peripheral vascular disease, cerebral vascular disease, coronary atherosclerosis, or sudden cardiac death at < age 55, or parents who have elevated cholesterol. Consider doing a lipid profile if the adolescent has other risk factors such as overweight, smoking, hypertension, diabetes, and/or physical inactivity. The following areas should be screened selectively based on risk assessment:

Anemia – Starting in adolescence, screen all non-pregnant women for anemia every 5 to 10 years. Annually screen women with risk factors including excessive menstrual or other blood loss, low iron intake, or previous iron deficiency anemia.

Hearing – Screen if teen has any concerns such as trouble hearing on the phone or while watching TV.

Tuberculosis – Screen if there is contact with someone with TB or a family member has had a positive TB skin test; if the teen was born in a high-risk country (any other than the U.S., Canada, Australia, New

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Zealand, or Western European countries); or has traveled to a high-risk country for longer than one week. Anyone infected with HIV or incarcerated should have annual TST.

Sexually Transmitted Infections/Pregnancy – Screen sexually active young women annually for chlamydia, gonorrhea and pregnancy. HIV screening is encouraged for all who are sexually active and older than 13. HIV and syphilis screening should be done in adolescents with risk factors such as males who have sex with other males, teens who trade sex for money or drugs, injection drug users, patients who have had unprotected sex with multiple partners, or those who have been imprisoned.

Alcohol or Drug use Administer an alcohol or drug screening tool (such as the CRAFFT screening test) to adolescents who answer in the affirmative to risk-screening questions, including “Have you ever had an alcoholic drink or used marijuana or any other drug to get high?”

IMMUNIZATIONS:

Review immunizations at all visits. Give particular attention to Tdap, MCV-4, HPV, and Influenza (TIV or LAIV), if in season. Confirm that the teen has received two Varicella immunizations as well as two Hepatitis A vaccines.

ANTICIPATORY GUIDANCE:

The following priority areas should be discussed over the course of adolescence:

Physical Growth & Development

- 1 Balanced diet including three or more daily servings of low-fat dairy, three nutritious meals, and family meals as often as possible.
- 2 Physical activity for one hour on most days of the week.
- 3 Limit TV, video games, DVDs, or computer use (outside of homework) to no more than two hours per day.
- 4 Brush/floss teeth twice daily, see a dentist regularly, and use a mouth guard for contact sports.
- 5 Wear hearing protection when exposed to loud noise.

Social & Academic Competence

- 1 Parents should set age-appropriate limits and expectations for their teen. Promote independent decision-making.
- 2 Encourage teens to stay connected with their family, as well as develop relationships with positive friends. Parents should maintain a positive relationship with their adolescents, be affectionate, and give praise for efforts and achievements. They should monitor their adolescent’s whereabouts and friends.
- 3 Encourage community involvement, as well as involvement in activities of interest.

- 4 Emphasize the importance of school and have the teen take responsibility for getting homework done. Parents should help out with organizational issues or new activities as needed. Plan for after high school.

Emotional Well Being



- 1 Involve teens in family decision-making and help them find ways to deal with stress.
- 2 Explore mental health, including symptoms of depression.
- 3 Encourage communication about issues of puberty and sexuality.

Risk Reduction

- 1 Explore use of alcohol, tobacco, and drugs taken for recreational purposes. Particularly discourage use while on the water or while operating motor vehicles. Encourage avoiding situations where alcohol and drugs are readily available.
- 2 Inform teens that abstaining from sexual intercourse is the safest way to prevent pregnancy and STIs. Encour-

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Pediatric Overweight and Obesity Survey

By Andrew Petersen, MD, University of Iowa Children's Hospital

Pediatric overweight is defined as having a BMI-for-age at or above the 85th percentile but lower than the 95th percentile. Obesity is defined as having a BMI-for-age at or above the 95th percentile. In the most recent National Health and Nutrition Examination Survey (NHANES 2007-2008), 16.9% of children and adolescents were at or above the 95th percentile and 31.7% were at or above the 85th percentile of BMI for age. It is estimated that by 2015, 75% of U.S. adults will be overweight or obese and 41% will be obese.

Adult obesity leads to approximately 200,000 excess deaths per year in the U.S. The pediatric obesity epidemic has the potential to significantly increase morbidity and early mortality as the current generation of overweight children matures. Metabolic syndrome (elevated triglycerides, low HDL cholesterol, central obesity, insulin resistance, and high blood pressure) in childhood predicts cardiovascular disease in adults. Obesity increases the risk of esophageal, thyroid, renal, endometrial and breast cancers and it has been suggested that the pathogenesis of these diseases begins with obesity of childhood. Several studies have demonstrated that obesity during childhood and adolescence commonly persists into adult-

hood, making it an attractive target for interventions aimed at reducing mortality in adults.

The burden of disease from pediatric obesity is not limited to adults. Overweight and obese children and adolescents report lower quality of life than normal weight children. In one recent study, the health-related quality of life (HRQOL) associated with obesity was worse than the HRQOL in cystic fibrosis, inflammatory bowel disease, epilepsy, type 1 diabetes mellitus, and was comparable to the HRQOL following renal transplantation. The prevalence of asthma is higher in obese children and adolescents. Obesity is a risk factor for musculoskeletal injuries. Children and adolescents with overweight or obesity are less likely to participate in physical activities and have an increased incidence of musculoskeletal complaints. In addition, the prevalence of metabolic syndrome among overweight and obese children and adolescents is increasing.

Severe obesity (BMI greater than 99th percentile) in children is also increasing with 4% of children (2 million children between the ages of 1 and 18 years) classified as severely obese. This is particularly concerning because, in addition to the health consequences, severely obese children and adolescents are more likely

to have serious co-morbidities such as obstructive sleep apnea, type 2 diabetes mellitus, *pseudotumor cerebri*, and hepatic steatosis. In one large analysis, 59% of children with a BMI at or above the 99th percentile had at least two additional cardiovascular risk factors and 88% went on to have an adult BMI at or above 35kg/m². It has been suggested that in some limited cases, severe obesity may be a sign of medical neglect and may require removal from the home to protect the child from harm.

The majority of pediatricians report feeling frustrated when trying to treat obesity. In one survey, 45% of pediatricians reported not feeling competent in responding to a patient's questions regarding treatment options for obesity and 61% did not feel prepared to use motivational interviewing techniques to change behavior

A recent Cochrane Review analyzed 64 randomized controlled trials of lifestyle interventions for the treatment of pediatric and adolescent overweight and obesity. On meta-analysis, statistically significant improvements in age- and sex-normalized BMI (BMI-SDS) were seen at 6- and 12-month follow-ups in children 12 years and older. In those less than 12 years of age, statistically significant improvements were seen at 6 months, but not at

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12-month follow-up. Effect sizes were very small, especially in younger children, bringing into question the clinical significance of these interventions.

The authors note that many studies included in the analysis suffered from methodological problems including low power, high dropout rates, and poor accounting of missing data.



Another problem in pediatric overweight and obesity research has been poor durability of effects. Several studies have demonstrated statistically significant improvements in BMI-SDS at 6 months but not at 12-month follow-up. One notable example is a 2005 study by Carrel et al. They performed a 9-month school-year intervention using a fitness-oriented gym class and demonstrated improved cardiovascular fitness, loss of body fat, and improvement in insulin sensitivity compared to controls in traditional gym class. However, when subjects were re-tested after the 3-month summer break, fitness levels had decreased, fasting insulin levels had increased, and body fat had increased to pre-intervention levels. Clearly, interventions aimed at treating pediatric overweight and obesity must be designed for sustainability.

There are, however, reasons to be optimistic about the future of pediatric overweight and obesity treatment. The 2009 Cochrane Review does conclude that family-based combined dietary, physical activity, and behavioral lifestyle interventions do appear to be effective for treating pediatric overweight and obesity. This is the first update to this review that has concluded any effectiveness from lifestyle interventions. The most recent NHANES data suggests that the prevalence of pediatric overweight and obesity has been leveling off since 1999. A recent study of California school-based BMI data demonstrated a peak in the prevalence of overweight and obesity among 5th, 7th, and 9th-grade students in 2005 with a steady decline since 2005. White boys and girls, in particular, have shown dramatic improvements and have returned to 2001 prevalence rates for all BMI cut points. Only black and American Indian girls demonstrate ongoing increases in overweight and obesity prevalence. This peak in overweight and obesity in California is particularly heartening because it seems to follow the 2005 implementation of many policies and programs designed to address the pediatric obesity problem in California.

Although family-centered interventions have the largest evidence base for obesity treatment, motivational interviewing has gained wide acceptance because it is less time consuming for the clinician and has

been demonstrated effective for similar problems, including tobacco use, alcohol abuse, and risk-taking behavior among adolescents. Motivational interviewing has been identified as a potentially useful strategy for the treatment of pediatric obesity but has not yet been systematically evaluated.

Clinicians have a tall task in addressing pediatric and adolescent obesity. Clearly we cannot solve this problem on our own, but must partner with schools, communities, families and individual patients to find ways to help children and adolescents reach and maintain a healthy weight. Advocating for healthy food choices, opportunities for physical activity and sustainable lifestyle changes should remain an important part of our daily work.

Resources:

Barlow SE. Expert committee recommendations regarding the prevention, assessment, and treatment of child and adolescent overweight and obesity: summary report. *Pediatrics*. 2007;120 Suppl 4:S164-192.

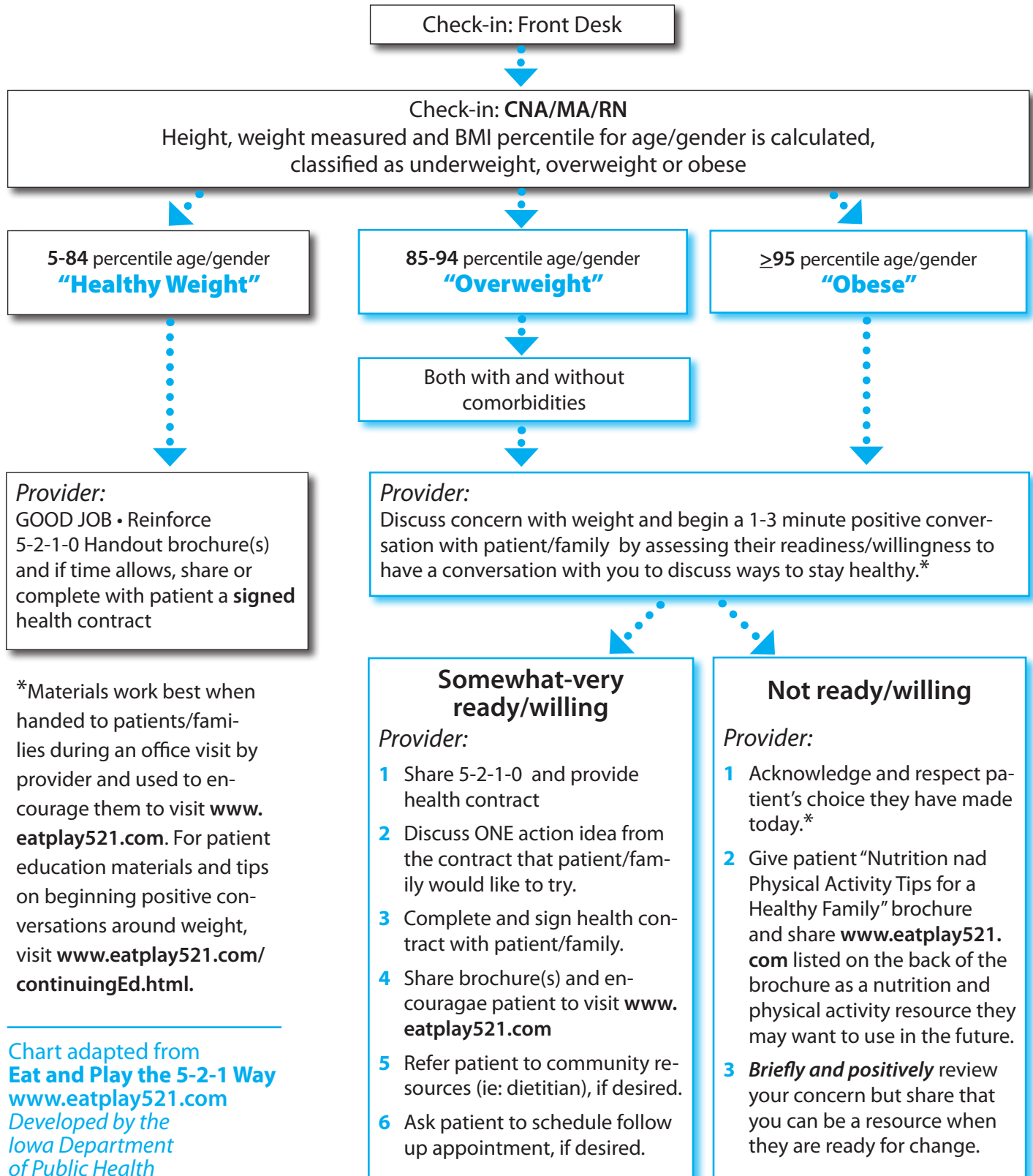
Oude Luttikhuis H, Baur L, Jansen H, Shrewsbury VA, O'Malley C, Stolk RP, et al. Interventions for treating obesity in children. *Cochrane Database Syst Rev*. 2009(1):CD001872.

Madsen KA, Weedn AE, Crawford PB. Disparities in peaks, plateaus, and declines in prevalence of high BMI among adolescents. *Pediatrics*. 2010.

For a complete bibliography, contact andrew-r-peterson@uiowa.edu.

Distributing Dietary-, Activity-, and Obesity-Related Information During Office Visits

All Well-Child Visits Ages 2-18



*Materials work best when handed to patients/families during an office visit by provider and used to encourage them to visit www.eatplay521.com. For patient education materials and tips on beginning positive conversations around weight, visit www.eatplay521.com/continuingEd.html.

Chart adapted from **Eat and Play the 5-2-1 Way** www.eatplay521.com
Developed by the Iowa Department of Public Health

Online Tool Available for Addressing Overweight and Obesity during Office Visits

Health care providers now have access to a time-efficient, cost-effective tool, the new website *Eat & Play the 5-2-1 Way* (www.eatplay521.com). Developed by the Iowa Department of Public Health to help providers address obesity and overweight while offering research-based recommendations, the tool includes:

- Free educational materials and tools for patients and families that focus on creative nutrition and physical activity ideas
- An online continuing medical education module focused on motivational interviewing and supporting patients in health behavior change
- A list of community resources to share with patients including a link to “Find a Registered Dietitian in your Area”
- Easy-to-access reimbursement codes for obesity (coming soon)

In addition, located on the *Eat & Play the 5-2-1 Way* homepage is a “Kids, Teens and Families” section for patients that provides information on easy steps families can take to eat better and move more. This section includes creative ideas for physical activity, healthy eating on a budget, addressing the picky eater, and eating more meals together as a family.

For additional information on *Eat & Play the 5-2-1 way*:

- visit www.eatplay521.com,
- contact IDPH at 515-242-5813 or
- email iowansfitforlife@idph.state.ia.us.

“*Eat & Play the 5-2-1 Way*” was created by IDPH with funding from Iowa Health Systems.

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age them to avoid risky places and relationships. If they are sexually active, encourage contraceptive and condom use.

Violence and Injury Prevention

- 1 Tell teens always to wear a safety belt in a vehicle and a helmet when riding a bike, a motorcycle, or an ATV, or when skateboarding.
- 2 Have parents set limits and expectations about driving, including the number of passengers, amount of night driving, and minimizing distractions.

- 3 Explore exposure to guns, carrying weapons, or fighting. If parents need to keep guns in the home, they should be stored unloaded and locked, with the ammunition locked in a separate location.
- 4 Encourage teens to manage conflict nonviolently, to walk away if necessary, and to avoid high-risk situations and violent people. Encourage healthy dating relationships based on respect, concern, and doing things both people enjoy. Remind them that saying “No” is OK and “No” means NO.

For additional information, consult the following resources:

Joffe A. ed. AM:STARs: Evaluation and Management of Adolescent Issues. Vol 19. Elk Grove Village, IL: American Academy of Pediatrics: 2008: 1-17

www.brightfutures.org

www.cdc.gov/nip/home-hcp.htm

www.immunize.org

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