ADOLESCENT OBESITY – TIME FOR A COMMITMENT TO ACTION
A Resource from the American College of Preventive Medicine

A Clinical Reference
The following Clinical Reference Document provides the evidence to support the Adolescent Obesity Time Tool.

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1. INTRODUCTION

In 2005, the American Medical Association (AMA), Health Resources and Services Administration (HRSA) and Centers for Disease Control and Prevention (CDC) convened an Expert Committee to revise the 1997 childhood obesity recommendations. Representatives from 15 healthcare organizations submitted nominations for the experts who would compose the three writing groups: assessment, prevention, and treatment. The initial recommendations were released on June 6, 2007 in a document titled "Appendix: Expert Committee Recommendations on the Assessment, Prevention and Treatment of Child and Adolescent Overweight and Obesity." [1]

This document is the primary reference for this time tool. It is available at: www.ama-assn.org/ama/pub/category/11759.html.

2. DEFINITIONS AND TERMINOLOGY

Body Mass Index (BMI) remains the standard for assessing excess body fat. [1,2]
- Defined as weight (in kilograms) divided by the square of height (in meters).
- Does not measure body fat directly but is simple and has acceptable clinical validity if used thoughtfully.
- BMI values correlate with body fat [2,3] and cardiovascular risk factors. [4]
- High BMI predicts future adiposity, as well as future morbidity and death. [5]

Calculators, wheels, tables, and nomograms are used to calculate BMI.
- It is then plotted on current growth charts available on-line from the CDC: www.cdc.gov/nccdphp/dnpa/growthcharts.
- Clinicians must plot BMI values on a sex-specific BMI curve according to age.
- Some electronic medical record programs can calculate BMI values, report percentiles, and automatically plot a child’s BMI values over time on a BMI curve. [1]

Need to use BMI percentiles in adolescents.
- Absolute BMI is appropriate in adults, but in children and adolescents percentiles specific for age and gender are used to define underweight, healthy weight, overweight, and obesity. [6]
- Growth charts for boys and girls are used to plot the BMI percentile. [7]

Two BMI cutoff points are recommended – the 95th percentile and 85th percentile. [1]
- When BMI is < 85th percentile, body fat levels are likely to pose little risk.
- When BMI is > 95th percentile, body fat levels are likely to be high.
- BMI of 85th to 94th percentile indicates health risks that vary depending on body composition, BMI trajectory, family history, and other factors.
- These cutoff points are unchanged from previous recommendations. [8]

The 2007 AMA Expert Panel does recommend a change in terminology from the 1998 recommendations: [1,8]
- For BMI ≥ 95th percentile → replace “overweight” with “obesity”
- For BMI ≥ 85th to 94th percentile → replace “at risk of overweight” with “overweight”

These terms provide continuity with adult definitions and avoid the vagueness of “at risk of overweight,” which has been confusing to patients and health care providers. [1]

Exceptions to the use of 85th and 95th percentile BMI values as cutoff points occur for older and younger children. [1]
- For older adolescents, BMI of 95th percentile is higher than BMI of 30 kg/m², the adult obesity cutoff point.
- The committee therefore recommends that obesity in youths be defined as BMI of 95th percentile or BMI of ≥30 kg/m², whichever is lower.
Use different terminology when communicating with patient/family.

- More neutral terms such as weight, excess weight, body mass index, BMI, or risk for diabetes and heart disease can reduce the risk of stigmatization or harm to self-esteem. [1]

**BMI is a screening tool to identify overweight, not a diagnostic tool.**

- Children with a BMI over these cut points do not necessarily have clinical complications or health risks related to overfatness. More in-depth assessment of individual children is required to ascertain health status. [9]
- The likelihood of health risks increases in the 85th to 94th percentile (overweight) category; the risk is influenced by various factors including parental obesity, family medical history, and current lifestyle habits, as well as BMI trajectory and current cardiovascular disease risk factors. [1]

**Recognition of the need for a third cutoff point to define severe obesity in childhood obesity seems to be evolving.** [1]

- An adolescent weighing 180 pounds and another weighing 250 pounds are in the same BMI category (>95th percentile) but face markedly different social and medical effects.
- Children with a BMI above the 95th percentile (obese) are very likely to have obesity-related health risks, and should be encouraged to focus on weight control practices.

**The expert committee proposes severe obesity to be defined as the 99th percentile BMI, which is BMI of >30 to 32 kg/m² for youths 10 to 12 years of age and >34 kg/m² for youths 14 to 16 years of age.** [1]

- The 97th percentile is the highest curve available on the growth charts – (See Resources for tables for the 99th percentile cutoff points according to age and gender.)
- There is increasing prevalence of extreme obesity in children, putting them at high risk for multiple cardiovascular disease risk factors. [10]

3. **SIGNIFICANCE OF THE PROBLEM**

**PREVALENCE**

Childhood obesity is an epidemic, the most common chronic disease of childhood. The number of overweight adolescents has more than tripled since 1980.

- It is not just a cosmetic problem. Today, more and more children are being diagnosed with diabetes, hypertension and other co-morbid conditions associated with obesity and morbid obesity. [11]
- Obesity may result in a decrease in life expectancy for the first time in 200 years. [12]

**NHANES data shows that:**

Overall, in 2003-2006, nearly 1 in 6 (16.3%) children and adolescents aged 2-19 years were obese (≥ 95th percentile of the 2000 BMI-for-age growth charts), and nearly 1 in 3 (31.9%) were overweight (≥ 85th percentile). [13]

- In children aged 6 to 11, the prevalence of obesity more than doubled in the past 25 years, going from 6.5% in 1980 to 17.0% in 2006.
- In adolescents, aged 12 to 19, the prevalence of obesity more than tripled in the same period, going from 5% in 1980 to 17.6% in 2006.

**NHANES data going back to 1963 shows the trend -- the percentage of adolescents who are overweight or obese has increased steadily over the last 30 years.** More than 3 times as many were overweight/obese in 2008 than in 1980. [14,15]

- 1976-1980 period – 5% of 12-19 yr olds were obese
- 1988-1994 period – 11% of 12-19 yr olds were obese
- 2007-2008 period – 18% were obese
Prevalence of overweight and obesity (BMI ≥ 85th percentile) among children and adolescents ages 6-19 years, 1963-65 through 1999-2008

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2Data for 1963-65 are for children 6-11 years of age; data for 1966-70 are for adolescents 12-17 years of age, not 12-19 years.

The 2009 national Youth Risk Behavior Survey found that 10.9-13.1% of U.S. high school students were obese (BMI ≥ 95%). [16]

Demographic Trends
The obesity epidemic has disproportionately affected some racial/ethnic groups. In 2003–2004, the prevalence rates were particularly high among black girls (24%) and Mexican American boys (22%). [17]

- Rates have also increased among Native American and Asian American youths. [18,19]
- Overall, poverty is associated with greater obesity prevalence among adolescents. [8]
- Higher family SES is associated with lower obesity prevalence among white girls but not among black girls. [20]

IMPACT ON CO-MORBIDITIES
The rates of obesity-related co-morbidities are increasing in adolescents.

- Estimated that 3 of 5 obese young people already have at least one additional risk factor for heart disease, such as high cholesterol or high blood pressure; over 25% have two or more. [21]

Overweight and obese children and teens are approximately 10 times more likely than normal weight children to develop hypertension in young adulthood, three to eight times more likely to develop dyslipidemia, and more than twice as likely to develop diabetes. [22]

- Type 2 diabetes mellitus used to be rare in children, but has become the most common type of diabetes diagnosed in several pediatric diabetes centers, and accounts for between 8% and 45% of newly diagnosed diabetes mellitus youths under age 19. [23, 23a]

Metabolic abnormalities increase with excess fat. [24]

- Values for glucose, insulin, insulin resistance, triglycerides, CRP, interleukin-6, and systolic blood pressure, as well as the prevalence of impaired glucose tolerance, have been found to increase directly with increasing obesity. Correspondingly, adiponectin and HDL-C levels decreased with increasing obesity.

- The Metabolic Syndrome (MetS) has been shown to be present in 28.7% of overweight adolescents (body mass index [BMI], >/=95th percentile) compared with 6.8% of at-risk adolescents (BMI, 85th to <95th percentile) and 0.1% of those with a BMI below the 85th percentile. [24a]

- NHANES III data showed nearly a third (31.2% [95% CI 28.3% to 34.1%]) of overweight/obese adolescents had MetS. [24b]

- Another analysis showed even higher rates of MetS -- 38.7% in moderately obese children and 49.7% in severely obese children vs. none of the healthy weight. [24]

Other complications observed at increased rates in obese individuals, including:

- pulmonary (asthma, obstructive sleep apnea syndrome, pickwickian syndrome),
- orthopedic (genu varum, slipped capital femoral epiphysis), and
- gastrointestinal/hepatic complications, fatty liver disease. [25]
In addition, children who are obese are at greater risk for bone and joint problems, and social and psychological problems such as stigmatization and poor self-esteem. [26,27]

**PSYCHOLOGICAL IMPACT**
The psychological impact of childhood obesity may be just as damaging as the medical co-morbidities. [26]
- Discrimination and stigmatization is the most widespread, immediate psycho-emotional consequence of overweight and obesity. [26]
- Teasing and bullying are consequences of stigmatization; directly associated with low body satisfaction, low self-esteem, depression, suicidal thoughts and eating disorders. [28,29]

Data from the National Longitudinal Survey of Youth showed a significant relationship between obesity and changes in self-esteem during early adolescence, especially in girls. [30,31]
- By 13 to 14 years of age, significantly lower levels of self-esteem were observed in obese boys, obese Hispanic girls, and obese white girls compared with their nonobese counterparts. Nearly 70% of white and Hispanic obese females demonstrated decreasing levels of self-esteem by early adolescence. [30]
- Lower self-esteem in obese children was associated with significantly higher rates of sadness, loneliness, nervousness, negative self-image, social withdrawal, isolation and marginalization compared with obese children whose self-esteem remained unchanged. [31]
- Obese children with decreasing self-esteem were also more likely to smoke and drink alcohol than obese children with unchanged self-esteem. [31]

**IMPACT ON ADULT OBESITY**
Obese youth are more likely than normal weight children to become overweight or obese adults, and therefore more at risk for associated adult health problems, including heart disease, type 2 diabetes mellitus, stroke, several types of cancer, and osteoarthritis. [32]
- Obesity in childhood is an important early risk factor for much of adult morbidity and mortality. [33,34]

The probability of childhood obesity persisting into adulthood is estimated to increase from approximately 20% at 4 years of age to approximately 80% by adolescence. [35]
- Approximately 80% of children who were overweight at aged 10–15 years were obese at age 25. [36]

**4. ETIOLOGY**

**Obesity is the result of caloric imbalance.**
- Too few calories expended for the amount of calories consumed, partially mediated by genes. [26]
- Three components are driving the obesity epidemic: [40]
  1. The ubiquitous availability of high energy food, and media promotion of these foods,
  2. The decline in everyday activity, and
  3. A controlling factor in that humans evolved in an environment prone to food shortages, resulting in our natural drivers being geared to consuming more than we need. Our natural checks serve to answer to hunger and much less to excess.

**Overeating and sedentary habits are promoted by our lifestyle.**
- Changes that typically occur during adolescence exaggerate the discrepancy in energy balance:
  o Increased opportunities for overeating, especially highly processed, energy dense foods,
  o Decreased intake of low energy, nutrient dense foods (i.e., fruits and vegetables), and
  o Sedentary activities become more common – more so today than in previous decades. [12,40a]
Adolescence is a critical period for development of obesity. [41]
  • The normal tendency during early puberty for insulin resistance may be a natural cofactor for weight gain. [42]
  • Early menarche is associated with degree of overweight, with a twofold increase in rate of having a BMI greater than the 85th percentile. [43]

Obesity must be considered a chronic disease. [1,44-46]
  • The increase in obesity is too rapid to be caused by genes.
  • Instead, changes in eating and activity behaviors cause genetically susceptible individuals to express the obesity phenotype in increasing numbers.
  • For many reasons, including fewer mandated school physical education programs, lack of safe areas for exercise, and the dominance of TV as a form of entertainment, physical activity levels are lower now than they were 20 years ago.
  • Caloric intake has increased remarkably because of the availability of fast foods that are high in calories and because of the lack of adult supervision in the lives of many children.

5. LIFESTYLE FACTORS

ENERGY INTAKE
Several dietary patterns contribute to excessive energy intake in children and teens, including:

Consuming beverages with added sugar [47]
  • Arguably the most important factor -- the strongest evidence between food intake and obesity development. [54,55]
  • Sugar-sweetened beverages are high in calories, less satiating, and children often do not compensate for the excess calories. [56,57]
  • One in five 9-13 year olds, and half of boys and a third of girls 14-18 years of age consume three or more soft drinks per day. [58]
  • 1 in 3 drink sugar sweetened soda daily. [48]
  • Soft drink consumption almost doubled among adolescent females, and almost tripled among adolescent males from the mid-1980s to the mid-1990s. [50]

Large portion sizes for food and beverages [47]
  • Increase in portion sizes -- increased by 25-50% over the last 2 decades (plate sizes, supersizing/value meals, recipes). [64]
  • Many well-controlled, laboratory-based studies have found that large portions of energy-dense foods can lead to excess energy intakes. [64a]

Frequent snacking on energy-dense foods [47]
  • 2 out of 3 exceed dietary guidelines recommendations for fat intake. [50]
  • Nearly 3 in 4 exceed recommendations for saturated fat intake. [50]

Eating meals away from home [47]
  • Absence of family meals -- lower fruit and vegetable consumption and more fried food and carbonated beverages. [59-61]

Low intake of fruits and vegetables [49]
  • 4 out of 5 do not eat the recommended 5 or more servings of fruits and vegetables per day (excluding french fries and potato chips). [48]
  • 3 out of 5 do not meet the recommendation for fiber. [51]

Not eating breakfast.
  • Nearly 1 in 4 adolescents ages 12–19 does not eat breakfast regularly. [50]
Low intake of calcium.
- More than 4 out of 5 adolescent females do not consume enough calcium. [52]
- Consumption of milk, the largest source of calcium, has decreased 36% among adolescent females in the last 25 years. [53]

Other factors associated with excess caloric intake:
- Lower socioeconomic status -- fewer fruits and vegetables and a higher intake of total and saturated fat. [59-61]
- Belonging to an ethnic group -- all groups consumed more soda and fewer servings of fruit, vegetables, and milk than recommended for a healthy diet (2001 California Health Interview Survey -- adolescents aged 12 to 17 years). [63]
- Advertising:
  - 25%–70% of the 40,000 ads/year are for food, much aimed directly at children, a third containing misleading nutrition information, and $13 billion/year on restaurant and food ads. [65]

ENERGY EXPENDITURE
Relationships between sedentary behavior and adolescent overweight cannot be explained by using single markers of inactivity, such as TV viewing or video/computer game use. [66]
- Many factors contribute, and it is the combination that results in the decline of energy expenditure.

The 2009 national Youth Risk Behavior Survey indicates that among U.S. high school students: [67]
- 23% do not get the recommended amount of physical activity,
- Nearly half of school age adolescents do not attend physical education classes,
- 1 in 3 watch at least 3 hours of TV on an average school day, and
- 1 in 4 play video or computer games, or use computer for other than schoolwork, for 3 or more hours on an average school day.

More screen time, more overweight
Nearly 1 in 3 adolescents who have at least 5 hours of screen time daily are overweight vs. 1 in 8 who have no more than 2 hours of screen time daily. [68]
- 2 out of 3 children watch at least 2 hours of TV daily, more than 1 in 4 watches at least 4 hours per day. [69]
- Those who watched 4 or more hours of television per day had significantly greater BMI, compared with those watching fewer than 2 hours per day. [69]
- Having a television in the bedroom is a strong predictor of being overweight, even in preschool-aged children. [70]

Less physically active behaviors
National survey data indicate that children are currently less active than they have been in previous surveys. [67,72-74]
- With increasing urbanization, there has been a decrease in frequency and duration of physical activities of daily living for children, such as walking to school and doing household chores. [72]
- Changes in availability and requirements of school physical education programs have also generally decreased children's routine physical activity, with the possible exception of children specifically enrolled in athletic programs. [73]
- All these factors play a potential part in the epidemic of overweight. [71]
- National survey data indicate that 1 in 5 US children 8 to 16 years of age reported 2 or fewer bouts of vigorous physical activity per week. [72]

Less school physical activity
- Daily participation in school physical education among adolescents dropped 14 percentage points over the last 13 years — from 42% in 1991 to 28% in 2003. [73]
- Less than one-third (28%) of high school students get recommended levels of physical activity. [74]
• Less than half of US schools offer P.E., and 1 in 4 adolescents don’t do any activity outside of school. [75]

UNHEALTHY WEIGHT LOSS PRACTICES
A large number of high school students use unhealthy methods to lose or maintain weight. A nationwide survey found that during the 30 days preceding the survey, 12.3% of students went without eating for 24 hours or more; 4.5% had vomited or taken laxatives in order to lose weight; and 6.3% had taken diet pills, powders, or liquids without a doctor’s advice. [76]

HOME, SCHOOL AND COMMUNITY FACTORS
Home, school, and community environments influence children’s behaviors related to food intake and physical activity. [77,77a,77b]
• **Within the home:** Parent-child interactions -- parents are role models for their children who are likely to develop habits similar to their parents.
• **Within schools:** Schools are ideal settings for teaching healthy eating and physical activity behaviors.
• **Within the community:** Sidewalks, bike paths, and parks encourage walking or biking to school as well as participating in physical activity. Access to affordable, healthy food choices in neighborhood food markets can increase purchasing of healthy foods.

6. THE ROLE OF PRIMARY CARE PHYSICIANS

A DISCONNECT BETWEEN KNOWLEDGE AND PRACTICE
The primary care physician has a comprehensive role in managing an adolescent’s weight problem. The most recent guidelines expand this role. [1,78]
• Clinicians are well aware of the problem, but there is still a disconnect between this knowledge and the delivery of care. [79,80]
• A feeling of hopelessness about the effectiveness of treatments for obesity or an expectation that most children will “outgrow” their obesity is common. [81]
• Pediatrics textbooks barely touched the subject of treating childhood obesity in the past. [82]

Lack of confidence pervades the issue.
• Clinicians, in general, have a poor self-efficacy when it comes to managing childhood obesity. Fewer than 2 out of 5 believe they can effectively manage their adolescent patients’ excess weight, and fewer than 1 in 8 feel they can be “highly effective.” [83]
• Better counseling tools, an on-site dietitian and patient educational materials were cited as the greatest ways to improve obesity management.

DOCUMENTATION OF OVERWEIGHT
Overweight and obesity are under-diagnosed in children and adolescents.
• Data from the 1999-2002 NHANES showed that only 4 in 10 overweight adolescents ages 12-15 years and half of overweight 16-19 year olds had been told by a doctor or other health-care professional that they were overweight. [84]
• Diagnosis of overweight or obesity ranges from 17% to 29% among children and adolescents who have BMI >85th percentile [85-87].

Obesity (BMI ≥ 95th percentile) is identified more often than overweight (85th-94th percentile).
• Pediatricians identified only 27% of children in the 85th to 94th percentiles as overweight, but 86% of children in the 95th percentile or greater as obese. [88]

USE OF BMI TO ASSESS OVERWEIGHT
The use of BMI to assess childhood overweight is low – less than 30% of pediatric health care professionals. [89]
• Most pediatricians, pediatric nurse practitioners (PNPs), and registered dietitians primarily use clinical impression, weight-for-age percentile, weight-for-height percent, and weight-for-height percentile to assess degree of overweight.

• Fewer than 20% use BMI, and even fewer plot the BMI percentile on a growth chart. [89]

• Chart review of six practices before and after training and dissemination of an office-based tool to enhance obesity management showed that:
  o Frequency of BMI% before the intervention was 12%, after intervention 29%.
  o Taking a behavioral history increased from 50% to 80%, and counseling increased from 33% to 48%. [90]

• A survey of members of the North Carolina Pediatrics Society showed that only 11% of respondents "always" used BMI and 31% reported "never" used BMI.
  o BMI charting prompted greater recognition of a weight problem than height and weight charting. [91]

• A medical record review of children diagnosed with obesity showed that BMI was documented in only 5%. [92]

The use of BMI charts increases documentation.
• The use of BMI charts increased the likelihood of BMI being discussed (7 in 10 with charts vs. 1 in 25 without), and overweight being diagnosed (8 in 10 vs. 1 in 10, respectively). [93]

HISTORY TAKING AND MEDICAL EXAM PRACTICES
After overweight is identified, the next step is identifying current medical problems and risk factors for future disease.
• A thorough medical evaluation precedes weight control interventions. [1]

Most pediatricians and PNPs routinely evaluated blood pressure, but a minority routinely looked for orthopedic problems, insulin resistance, and sleep disorders. Less than 1 in 10 followed all recommendations for history and physical examination. [89]

Percentage who do the assessment "most of the time" or "often" with overweight/obese children

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<tr>
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<th>% of Pediatricians</th>
<th>% of PNP</th>
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<tr>
<td>- Gallbladder disease</td>
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<td>Physical Exam</td>
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<td>- Endocrine disorders</td>
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<tr>
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<tr>
<td>- Orthopedic problems</td>
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<td>- Sleep disorders</td>
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### Test or Assessment

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<td>45%</td>
</tr>
<tr>
<td>- Liver enzymes</td>
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### Counseling Practices

There is a distinct lack of research into counseling practices specifically targeting overweight or obese adolescents. For one thing, adolescents have the lowest rates of outpatient visits among all age groups, with particularly low rates among boys and ethnic minorities. [94]

- Rates of risk behavior screening and counseling remain lower than recommended due in part to time constraints, inadequate reimbursement, and limited ancillary support. [94,94a]

Rates of diet, exercise and weight management counseling are much lower than they should be. [95]

- One review of 633 family practice visits showed that weight loss counseling occurred with only 8% of overweight children. [96]
- A random sample of a nationally representative sample found that approximately half of pediatricians reported always counseling about maintaining a healthy weight. [97]
- The frequency of counseling might be improved by training clinic staff (medical assistants, nurses, dietitians, etc.) in motivational interviewing and goal setting.

Data from the National Ambulatory Medical Care Survey for the 3-year period, 1995-1997 showed that any preventive health counseling occurred in only 15.8% of family physician visits and 21.6% of pediatrician visits. The length of consultation increased from 13.8 to 17.6 minutes if counseling was included. [97a]

#### Counseling – Diet and Exercise

Data from the National Ambulatory Medical Care Survey for 1997-2000 show that counseling services were documented for 39% of all adolescent general medical/physical examination visits. [94]

- Diet and exercise were the most frequent counseling topics, but were included in only 26% and 22% of visits. [94]
- Just over a third (38%) of youth 10 to 18 years old reported discussing sugar-sweetened beverages, fast food consumption or television viewing (41%) with their clinicians during an annual physical exam. [98]
- Significant disparities exist in the rates of counseling in minority groups. [99]

#### Incidence of Counseling and Screening (%) [94]

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<tr>
<td>Exercise</td>
<td>13</td>
<td>11</td>
<td>10</td>
</tr>
</tbody>
</table>

Only 6.5% of adolescent ambulatory visits were for well care, less than 1% for obesity.

- Counseling for diet (72% vs. 28%) and exercise (52% vs. 23%) was more frequent at acute visits than well visits. [100]
Programs to increase the diagnosis of obesity could improve diet and exercise counseling rates.

- Diet counseling was reported for 88% and exercise counseling was reported for 69% of visits with an obesity diagnosis compared with 36% and 19% during well visits without a diagnosis of obesity.
- The problem is that obesity was diagnosed in less than 1% of visits. [95]

7. WHAT'S NEEDED TO IMPROVE COUNSELING PRACTICES

Consistent documentation of BMI percentile on a growth chart.
- Only 41% of growth charts have been shown to be current, and only 6% had BMI plotted. [88]
- BMI plotting significantly increased diet counseling (OR, 7.46) and exercise counseling (OR, 5.57). [88]
- An electronic medical record (EMR) automatic BMI calculation has been shown to improve documentation and treatment of obese patients. [101]

Increasing the diagnosis/documentation of obesity is the key.
- Those with a diagnosis of obesity were 12 times as likely to receive counseling on diet and exercise. [95]
- Develop strategies that increase patient self-identification of weight as a problem, and then seek weight loss support. [1]

Office tools to facilitate obesity management.
- Implementation of office-based tools significantly improved providers' documentation, assessment and counseling of childhood overweight. [90]

More education and tools to assist the process.
- Implementation of office-based tools significantly improved providers' documentation, assessment and counseling of childhood overweight. [90]
- Educate physicians about educational programs, clinical tools, and weight-management and community-based physical activity programs. [78]
- There are opportunities for the already practicing physician to be taught strategies to prevent and manage childhood obesity. [102-104]
- A survey of pediatric residents on their knowledge and attitudes about obesity prevention and management confirmed that their knowledge and counseling skills were below expectation. [105]
- Implementation of an "Obesity Prevention in Pediatrics" curriculum improved their knowledge, skills and comfort level in the recognition, evaluation and counseling of both obese and overweight pediatric patients and their families. [105]
- Two CME trainings on pediatric overweight assessment and management for clinicians and staff in a managed care system resulted in a significant increase in the utilization of some tools and practices, including charting BMI-for-age percentile and using a nutrition and activity self-history form. [106]
- Training and tools for residents and community pediatricians improved their confidence, ease, and frequency of obesity-related counseling. Widespread implementation of educational interventions for community practitioners could change the way physicians counsel patients to prevent the often frustrating problem of childhood obesity. [106a]

Implementation of evidence-based recommendations.
- A companion guide to implement the AMA recommendations is available. [107] (See Resources – Links)

Clarification and support with coding issues.
- The AAP has a fact sheet about reimbursement for these office visits. [108] (See Resources – Links; also Resources – Tools: Tables 12, 13)
- Better methods for clinicians to “medicalize” obesity – to associate medical problems (and code) with weight loss counseling. [1]
8. PRIMARY CARE RECOMMENDATIONS

The following recommendations for managing childhood obesity are from the 2007 AMA Expert Committee on the Assessment, Prevention, and Treatment of Child and Adolescent Overweight and Obesity. [1,109]

- They outline a more comprehensive role for the primary care physician in managing childhood obesity than in the previous recommendations. [8]
- Since the 1998 recommendations were released, several publications outlining nutrition and physical fitness guidelines have been published. [110-114]
- There are still gaps in the evidence concerning some aspects of childhood obesity interventions; in these situations, the consensus of expert opinion was used to formulate the recommendations. [1]

ASSESSMENT

PRE-CONSULT (i.e., Nurse)

1. Assess Weight Status Using BMI:
   - Assess all children for obesity risk to improve early identification of elevated BMI, medical risks, and unhealthy eating and physical activity habits.
   - Calculate and plot BMI on a growth chart at least annually.
     - Accurately measure height and weight; measure height without shoes
     - BMI is very sensitive to measurement errors, particularly height;
     - A standard measurement protocol as well as training can improve accuracy.
     - Calculate BMI, plot on growth chart
     - BMI = \[\frac{\text{Wt in Pounds}}{\text{Ht in inches} \times \text{Ht in inches}}\] x 703 OR
     - BMI = \[\frac{\text{Wt in kg}}{\text{Ht in Meters} \times \text{Ht in Meters}}\]
     - Make a weight category diagnosis using BMI percentile:
       - < 5%ile Underweight
       - 5-84%ile Healthy Weight
       - 85-94%ile Overweight
       - ≥ 95%ile Obesity

2. Measure Blood Pressure

PHYSICIAN CONSULT

1. Take A Focused Family History (first and second degree relatives)
   - Parental Obesity - One obese parent more than doubles the risk of becoming obese [114a]; an obese mother is a stronger risk factor (more than triples the risk) [114b,114c] and if both parents are obese the risk is 5 to 8 times higher than if neither parent is obese. [114d, 114e]
   - Medical conditions that are more likely with both excess weight and family history:
     - Type 2 diabetes
     - Cardiovascular Disease (CVD)
     - CVD risk factors – hypertension, hyperlipidemia
   - Offices should review and regularly update family history regarding first- and second-degree relatives. Checklists of symptoms and family history for patients or parents to complete can expedite this process.

2. Screen For Current Medical Conditions And Future Risks
   - Obesity-related medical conditions affect almost every organ system in the body.
   - A review of systems and a physical examination should screen for these conditions (See Resources – Tools: Table 5)
     - Cardiovascular: hypertension; dyslipidemia (fasting lipid profile)
     - Endocrine: metabolic syndrome, type 2 diabetes (fasting glucose)
3. Order Laboratory Testing
   - BMI of 85th to 94th percentile
     - Fasting lipid panel and, if risk factors present, fasting glucose, ALT, and AST levels every 2 years.
   - BMI of ≥ 95th percentile
     - Fasting lipid panel and fasting glucose, ALT, and AST levels every 2 years, regardless of other risk factors.
   - Results of history, physical examination, and lab tests may indicate additional diagnostic tests (e.g., TSH, free T4, salivary cortisol, etc.)

4. Dietary and Physical Activity Assessments
   - Expert committee recommends a focused assessment of behaviors that have the strongest evidence for association with energy balance and that are modifiable.

For eating behavior assessment:
   - Frequency of eating food prepared outside the home, including food in restaurants, school and work cafeterias, and fast food establishments and food purchased for “take out”
   - Ounces, cups, or cans of sugar-sweetened beverages consumed each day
   - Portions that are large for age (qualitative assessment) – for help with portion sizes see: http://www.mypyramid.gov/STEPS/howmuchshouldyoueat.html
   - Volume (cups/ounces) of 100% fruit juice consumed each day
   - Frequency and quality of breakfast
   - Consumption of foods that are high in energy density, such as high-fat foods
   - Number of fruit and vegetable servings consumed each day
   - Number of meals and snacks consumed each day and quality of snacks
   - Frequency of family meals

For physical activity assessment, the following behaviors should be addressed:
   - Time spent in moderate physical activity each day (including organized physical activity and unstructured activity, including play), to estimate whether the goal of 60 minutes of moderately vigorous activity each day is achieved
   - Routine activity patterns, such as walking to school or performing yard work or household chores
   - Sedentary behavior, including hours of television, videotape/DVD, and video game viewing and computer (screen time)

Tools to Assist Behavioral Assessment
   - Several tools have been developed to aide this part of the assessment (See Resources – Links)
   - The WAVE (weight, activity, variety, and excess) screener [115] and the REAP (Rapid Eating and Activity Assessment for Patients) [116] questionnaire are promising office-based tools.
   - The lifestyle log, which standardizes the evidence-based nutrition, physical activity, and inactivity questions, can also help initiate counseling. [117]
• The AAFP has produced a tool called AIM to Change, which focuses on promoting physician-patient dialogue about nutrition and physical activity and creating a supportive office environment. [118]

BECOME ADVOCATES FOR CHANGE
More active support for improved nutrition in schools.
• Greater focus on limiting sugar-sweetened drinks -- what can be done from a counseling and community perspective
• Support removing drink machines for sweetened beverages in schools, limiting fruit juices that contain added fructose and limiting foods with corn syrup added in cafeterias.

Greater involvement in community initiatives for better nutrition and more opportunities for physical activity.

INTERVENTIONS
A four-stage approach to treatment is recommended for overweight whose weight places them at increased risk for co-morbid conditions and all obese adolescents.
• Treatment begins with Stage 1 (Prevention Plus) and progresses to the next stage if there has been no improvement in weight/BMI or velocity after 3-6 months and the family is willing/ready.

The stages:
• First two stages suitable for office; last two are specialized programs and pediatric weight management centers
• Stage 1 – Basic office-based intervention for overweight/obese; includes brief counseling focusing on changing habits, follow-up monthly
• Stage 2 – More intensive office-based program; more staff involved; structured diet, activity, monitoring, behavioral counseling.
• Stage 3 – Comprehensive program with multidisciplinary team; usually exceeds capacity of primary care office; refer only after screening to ensure a healthy approach.
• Stage 4 – Referral to a specialized pediatric weight management center, reserved for most severe cases that have not been successful in first three stages.

THE STAGES

STAGE 1 – Focus on Improving Lifestyle Habits
Goal is weight maintenance for overweight youth, with growth resulting in decreasing BMI as age increases; for obese adolescents weight loss should not exceed 1-2 pounds per week.

Key habits to develop:
• Consume at least 5 servings of fruits and vegetables per day.
• Minimize (no more than 12 oz per week) or eliminate sugar-sweetened beverages -- soda, sports drinks, punch.
• Limit screen time to < 2 hours per day (TV, computer, games, movies), no television in bedroom.
• Engage in ≥ 1 hour of daily physical activity (enjoyable activities, structured or unstructured, at one time or in multiple shorter periods)

Other eating behaviors to encourage:
• Have a healthy breakfast daily.
• Limit meals outside the home, especially fast food.
• More family meals - at least 5 or 6 per week.
• Self-regulating meals, avoiding overly restrictive behaviors.

Counseling:
• Help child/family identify the behaviors that most contribute to energy imbalance.
• Use motivational interviewing techniques to allow adolescent to determine the priority behaviors.
• Acknowledge cultural differences -- adapt recommendations to meet differences, resources, preferences available.
• Set realistic goals to reach target behaviors in steps. For example, begin with 15 minutes of physical activity per day and work up to 60 minutes, or target 2 or 3 behaviors in the beginning and add more behaviors with time.
• Follow-up visit frequency tailored to the individual
• Expect imperfect adherence and tell patient/parent that they are making progress even if they do not achieve their goals every day.
• Focus on successes and not failures.

Follow-up:
• Typically monthly, but tailored to individual needs.
• No improvement in 3 to 6 months, consider moving to stage 2, if patient/family are ready.

STAGE 2 – A More Structured Protocol
Differs from Stage 1 in support and structure provided; target behaviors are same, but eating and activity plans are more specific.
• Goal remains weight maintenance with decreasing BMI as age and height increase.
• If weight loss occurs, should not exceed 2 lb/week.

Office Systems:
• Becomes more important and involved in interventions; more staff roles
• Provider’s office staff can provide much of this treatment, with some additional training.
• Some practices find group sessions to be effective and efficient.
• Eating plan requires a dietitian or a clinician with training in creating eating plans.
• Staff with training in motivational interviewing and monitoring and reinforcement techniques can establish initial goals with families and see them for follow-up.
• Referral to a physical therapist or exercise therapist can help with physical activity habits.
• Monthly office visits are most appropriate, but should be tailored to individual needs.

Recommendations:
• Employ a plan for a balanced macronutrient diet, emphasizing foods low in energy density (e.g., with high fiber or water content).
• Use structured meals and snacks (breakfast, lunch, dinner, and 1 or 2 snacks per day) with no food or calorie-containing beverages at other times.
• Planned, supervised physical activity or active play for at least 60 minutes per day.
• Limit screen time to only one hour per day.
• Monitor behaviors by using logs (for example, record minutes watching television and keep a 3-day record of food and beverages consumed)
• Plan reinforcement for achieving targeted behaviors.

Follow-up: Same as Stage 1
• Typically monthly, but tailored to individual needs.
• No improvement in 3 to 6 months, consider referral to a Stage 3 program, if patient/family are ready and a suitable program is available.

STAGE 3 – A Comprehensive Multidisciplinary Intervention
Intensity of behavior changes, frequency of visits, and specialists involved are all increased.
• Usually exceeds the capacity of a primary care office. However, an office or several offices could organize specialists to offer this kind of a program.
• Group visits more common.
• Systematic evaluation of body measurements, dietary intake, and physical activity conducted at baseline and at specific intervals throughout the program.
• Goal is weight maintenance or gradual weight loss until BMI is <85th percentile, with weight loss not exceeding 2 lb/week.

Eating and activity goals are the same as in stage 2. Activities include:
• Planned negative energy balance achieved through structured diet and physical activity
• Structured behavioral modification program, including food and activity monitoring and development of short-term diet and physical activity goals
• Involvement of primary caregivers/family members for behavioral modification
• Improving the home environment to promote positive behaviors, discourage negative behaviors.

Follow-up:
Weekly visits for a minimum of 8 to 12 weeks, with subsequent monthly visits.

When to consider Stage 4:
• BMI of >95th percentile who have significant co-morbidities AND who have not been successful in stages 1 to 3 OR
• BMI of >99th percentile who have shown no improvement in stage 3

STAGE 4 – An Intensive Pediatric Tertiary Weight Management Center
Implemented by a multidisciplinary team with expertise in childhood obesity, operating under a designed protocol.
• A full range of protocols is used, including continued diet and activity counseling, meal replacement, very low-calorie diet, medication, and surgery.

KEYS TO SUCCESS
Clinical Judgment
Clinicians must exercise judgment, not only in assessing the child’s health and designing an intervention, but perhaps even more importantly in communicating with the child and family.
• No formula exists to integrate BMI pattern, family background, and health behaviors and attitudes into an optimal intervention.
• Clinician may conclude that an overweight child is not “overfat” and reinforce prevention messages appropriate for children with healthy BMI values. [1]

Attention to body image issues
• Should be discussed with all adolescents – as many as half of adolescents trying to lose weight were not overweight. [119]

Emphasize learning healthy lifestyle behaviors and habits, rather than a specific time frame.
• Avoid setting specific time frames for weight loss.
• Childhood weight-management programs based on lifestyle interventions were more successful in the short term and the long term. [120]

Involve the family in the lifestyle changes
• Families are important mediators in long-term success. [121]

Connect patients to community-based physical activity programs. [122]

Greater collaboration between all involved
• Includes primary care physicians, families, policy makers, educators, and community partners. [78]

Emphasize the benefits beyond energy balance. [1]
9. EFFECTIVENESS OF KEY RECOMMENDATIONS

The evidence is limited due to a number of factors:

- Interactions between behaviors make it difficult to analyze the impact of any individual behavior. All of the behaviors play a role.
- If greater sugar sweetened beverage intake, larger portion sizes at all meals and snacks, more-frequent snacks, more ready-to eat foods, more restaurant eating, more television viewing, fewer physical education classes, less walking to and from school, less outside play at home, more escalators, elevators, and automatic doors, and so forth, all coexist, then the impact of any one of those behaviors on obesity prevalence may be unmeasurable.

The Expert Panel used the following evidence rating categories:

- **Consistent evidence (CE)** -- Multiple studies generally show a consistent association between the recommended behavior and energy balance.
- **Mixed evidence (ME)** -- Some studies demonstrated evidence for weight or energy balance benefit but others did not show significant associations, or studies were few in number or small in sample size.
- **When evidence is not available** -- The panel considered the literature, clinical experience, the likelihood of other health benefits, the possible harm, and the feasibility of implementing a particular strategy before including it in recommendations.

For PREVENTING weight gain -- Evidence supports the following: [1]

<table>
<thead>
<tr>
<th>BEHAVIOR RECOMMENDATIONS – PREVENTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CONVINCING EVIDENCE</strong></td>
</tr>
<tr>
<td>• Limit consumption of sugar-sweetened beverages</td>
</tr>
<tr>
<td>• Limit TV and other screen time to 2 hours or less per day</td>
</tr>
<tr>
<td>• Remove TV and other screens from primary sleeping area</td>
</tr>
<tr>
<td>• Eat breakfast daily</td>
</tr>
<tr>
<td>• Limit eating out at restaurants, especially fast food restaurants</td>
</tr>
<tr>
<td>• Family meals in which parents and children eat together</td>
</tr>
<tr>
<td>• Limit portion sizes</td>
</tr>
<tr>
<td><strong>MIXED EVIDENCE</strong></td>
</tr>
<tr>
<td>• Consume recommended quantities of fruits and vegetables</td>
</tr>
<tr>
<td><strong>LITTLE EVIDENCE BUT CONSENSUS OF EXPERT OPINION</strong></td>
</tr>
<tr>
<td>• ≥1 hour of moderate to vigorous physical activity each day</td>
</tr>
<tr>
<td>• Limit consumption of energy-dense foods</td>
</tr>
<tr>
<td>• Eat a diet rich in calcium, high in fiber and with balanced macronutrients</td>
</tr>
</tbody>
</table>

For TREATING overweight – Stage 1 – evidence supports the following: [1]

<table>
<thead>
<tr>
<th>BEHAVIOR RECOMMENDATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CONVINCING EVIDENCE</strong></td>
</tr>
<tr>
<td>• Limit TV and other screen time to 2 hours or less per day</td>
</tr>
<tr>
<td>• Remove TV and other screens from primary sleeping area</td>
</tr>
<tr>
<td>• Allow the adolescent to self-regulate his or her meals</td>
</tr>
<tr>
<td>• Involve the whole family in lifestyle changes</td>
</tr>
<tr>
<td><strong>MIXED EVIDENCE</strong></td>
</tr>
<tr>
<td>• Minimize or eliminate sugar-sweetened beverages</td>
</tr>
<tr>
<td>• ≥1 hour of moderate to vigorous physical activity each day</td>
</tr>
<tr>
<td>• Consume ≥5 servings of fruits and vegetables every day</td>
</tr>
<tr>
<td>• Eat a healthy breakfast daily</td>
</tr>
<tr>
<td>• Limit eating out at restaurants, especially fast food restaurants</td>
</tr>
<tr>
<td>• Eat at the table as a family at least 5 or 6 times per week</td>
</tr>
</tbody>
</table>
For TREATING overweight – Stage 2 – evidence supports the following in addition to Stage 1 recommendations: [1]

<table>
<thead>
<tr>
<th>BEHAVIOR RECOMMENDATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CONVINCING EVIDENCE</strong></td>
</tr>
<tr>
<td>• Monitoring eating and activity behaviors with daily logs</td>
</tr>
<tr>
<td><strong>MIXED EVIDENCE</strong></td>
</tr>
<tr>
<td>• Planned and supervised physical activity for one hour a day</td>
</tr>
<tr>
<td><strong>LITTLE EVIDENCE BUT CONSENSUS OF EXPERT OPINION</strong></td>
</tr>
<tr>
<td>• Additional reduction of screen time to &lt; 1 hour a day</td>
</tr>
<tr>
<td>• Structured meals and planned snacks with no other consumption</td>
</tr>
<tr>
<td>• A planned diet or daily eating plan with balanced macronutrients, emphasizing low energy dense foods</td>
</tr>
<tr>
<td>• Planned reinforcement for achieving target behaviors</td>
</tr>
</tbody>
</table>

10. COMMUNICATING WITH OVERWEIGHT ADOLESCENTS

There is legitimate concern over the stigmatization of overweight and obese children. [123,124]
- Health care visits are a good place to identify excess weight, because the setting frames the condition as a health problem and because the visit is private.
- Clinicians must take responsibility for identification but must approach the subject sensitively, to minimize embarrassment or harm to self-esteem.

Expert committee recommends the clinical terms overweight and obesity for documentation and risk assessment but the use of different terms when communication with adolescents. [1]
- Obese adolescents prefer the term “overweight.” [125]
- Clinicians should discuss the problem with individual families by using more-neutral terms, such as “weight,” “excess weight,” and “BMI.” [1]

The real challenge in obesity counseling lies in the process of influencing families to change behaviors when their habits, culture, and environment often promote less physical activity and more energy intake.
- Handing families a list of recommended eating and activity habits as if it were an antibiotic prescription is rarely effective. [1]

INVOLVING THE FAMILY

Treatment of obesity in children, like the treatment of obesity in adults, is expensive, lengthy and more effective if the whole family is involved. [126,127]
- The goal should be prevention in the entire population, with particular attention to more susceptible ethnic groups. [128]

Several studies of obesity treatment in children have demonstrated the importance of parents’ participation in weight control programs. [129,130]
- Parents can serve as role models, authority figures, and behavioralists to mold their children’s eating and activity habits.
- Clinicians can influence children’s habits indirectly by teaching and motivating parents to use their authority effectively.

The greater independence of older adolescents means that clinicians should discuss health behaviors directly with them, although parents should still be encouraged to make the home environment as healthy as possible. [1]
COUNSELING STRATEGIES
Evidence suggests that education alone is unlikely to elicit behavioral change. Consequently, it is necessary to move from a traditional advice-giving role to one which utilizes 'behavior change skills' in the counseling process. There are a wide range of skills and strategies that can be used to facilitate the discussion.

The 5A’s Approach
The 5-A framework (Assess, Advise, Agree, Assist, and Arrange) has been used in behavioral counseling interventions such as smoking cessation and may be useful in helping clinicians guide interventions for weight loss. Initial interventions paired with maintenance interventions help ensure that weight loss will be sustained over time. [131]

A model for helping physicians deliver brief, individually tailored lifestyle change messages to patients. [131a]

- **Assess** – current activity level, contraindications to exercise, social support, self efficacy
- **Advise** – guideline recommendations, tailored to individual needs
- **Agree** – next steps based on stage of readiness to address the behavior, short-term goals
- **Assist** – written plan, self monitoring tools
- **Arrange** – follow-up to discuss progress, barriers

Positive Youth Development
Positive youth development is a strength-focused approach to adolescent health. [132]

- As a child enters adolescence, practitioners must shift their guidance from the parents to the adolescent. The future health of adolescents requires that they begin to make responsible decisions about their own health.
- The goals of a strength-based approach are to 1) raise adolescents’ awareness of their developing strengths and the role they can play in their own health and well-being and 2) motivate and assist them in taking on this responsibility. [132]
- The strengths that an adolescent has are building blocks to better health. Youth with more strengths participate in more healthy behaviors. [132a]

In the medical office, using this approach means showing respect and kindness toward adolescents and conveying the belief that they have the ability to continue their positive health behaviors or to make a behavior change when needed. [132]

- Every office visit is an opportunity to directly promote strengths in adolescents.
- Explore strengths with questions such as: How do you stay healthy? What do you do for fun? What’s going well at school? What are you good at? What responsibilities do you have at home? If I were an employer, why would I want to hire you? [133]

Positive youth development is correlated with psychosocial thriving, physical health, and lower likelihood of engaging in negative or risky behaviors during the adolescent years. [134,135]

Readiness to change
Is used to assure that the message provided fits the mindset of the patient and family who are often the shoppers/cooks:

- Stages of change theory describes cognitive stages that lead to behavior change. [136]
  - **Precontemplation** – An individual may initially be unaware of the problem – focus on why the change is important
  - **Contemplation** – Individual is becoming aware of the problem but still has no plans to address it – stress pros and cons, benefits
  - **Preparation** – Individual is planning for the new behavior – focus on getting started, steps and goals
  - **Action** – Finally the individual is beginning the new behavior – focus on strategies for success
  - **Maintenance** – Encourage continued behavior – anticipate obstacles and prepare for them
- **Relapse** – Assist the person to identify what caused the relapse and set goals to resume the desired behavior.

A clinician can help patients and families move through the stages, rather than prescribing a new behavior to those who are not ready.

**Motivational interviewing with the Empathize/Elicit - Provide - Elicit model [1]**

A shared decision making approach that takes into account patients’ readiness to change, then encourages a dialogue with the adolescent to uncover motivations, strengths and barriers, allowing the adolescent to recognize and take steps towards healthier behaviors.

- Motivational interviewing has been shown to be a promising approach to weight-control counseling in pediatric practice.

**Principles:**

- **Use nonjudgmental, nondirective questions and comments about the issues, e.g., a high BMI:**
  - “Your BMI is above the 95th percentile. What concerns, if any, do you have about your weight?”
  - Next step depends on the response. This differs from a directive style, in which you inform the patient of the seriousness of the condition.
  - “Your BMI is quite high, so it is important to get your weight under control before it becomes a bigger problem. What is your understanding of the potential problems?”

- **Use reflective listening to uncover the beliefs and values of the adolescent:**
  - So, it sounds like you have a pretty good understanding of some of the potential health problems. Would you like to talk about some ways that you could get down to a healthier weight? How ready are you to try to make a change or two (1-10 scale)? Are there things that you would like to do to lose some weight?

- **Use reflective listening again to uncover barriers to change:**
  - Summarize his/her comments without judgment.
  - For example: “If I heard you correctly, you know you need to get more exercise, but you really don’t like to exercise, so you are not really ready.”
  - Reflections help build rapport and allow the patient to understand and to resolve ambivalence.

- **Elicit concerns of patients.**

- **Compare values and current health practices:**
  - If the adolescent values being healthy, then help him/her examine some different types of activities that he/she might enjoy, and be willing to try.

- **Use a shared decision approach - Evoke motivation, rather than trying to impose it.**
  - What might need to be different for you to consider making a change in the future? And/Or
  - Could I give you some information about healthy activities [i.e. food choices] to help you think about this?

- **Help patient put together a plan that is consistent with this/her values.**
  - This avoids the defensiveness created by a more-directive style.

- **Close the Encounter:**
  - Summarize: “Lets look at what you’ve worked through”
  - Show appreciation: “Thank you for being willing to discuss this!”
  - Express confidence: “I know that you can do this!”
  - Arrange follow-up

**The Helping Skill**

Another model for counseling – a 5-step process for supporting positive change. [132]

- It also actively engages adolescents in their own transformation, rather than treating them as passive recipients of recommendations.

- The five steps:
  1. Identify the problem
  2. Explore options
3. Consider consequences
4. Make a Plan
5. Follow-up

11. OFFICE SYSTEMS

Develop Office Systems: [1]

1. **Make documentation of BMI routine for ALL adolescents**
   - Standardized measurement of weight and height, BMI calculation and plotting on the age/gender growth chart, BMI percentile
   - Implement tools to calculate BMI and use CDC growth charts to plot for percentile
     - Charts are increasingly available in computer and hard copy forms; tools such as mini-calculators facilitate BMI calculation and may increase the use of the BMI percentile growth curves.
   - Flag charts of overweight and obese children for follow-up

2. **Obesity prevention messages to ALL children at well child visits.**
   - Key messages repeated regularly: Use the 5-2-1-0 pneumonic
     - Increase fruits and vegetables to at least 5 a day, but not juice,
     - Limit screen time to no more than 2 hrs per day,
     - Get 1 hour of physical activity or active play every day, and
     - Eliminate (0) consumption of sugar-sweetened beverages, or juices.
   - Posters in waiting room and examination rooms and handouts to reinforce healthy lifestyle recommendations.

3. **Procedures to counsel overweight and obese adolescents (>85th percentile BMI).**
   - Waiting room -- checklist of family history, weight-related symptoms and conditions and lifestyle behaviors
   - Pre-exam routine – Chart review, issues to address, BMI, BP, concerns
   - Update family history regularly -- first and second-degree relatives
   - List of referrals -- specialists, community resources, programs
   - Training on counseling techniques, such as positive youth development and motivational interviewing
   - Simple checklists trigger appropriate medical history, physical examination, and family history evaluations

4. **Training** staff for respective responsibilities and skills; more required for Stage 2 intervention.
   - BMI measurement and documentation on growth charts
   - Family history documentation
   - Diet and activity assessments, behavioral counseling (motivational interviewing)
   - Dietician for eating plan; exercise therapist for activity plan
   - Chart review and maintenance
   - Plan documentation for follow-up

5. **Use a Chronic Care Model**
   The traditional office visit model works best for acute problems, but not for chronic conditions, such as diabetes or obesity.
   - Patient education about self-management can overwhelm both patient and clinician during an office visit.

   The chronic care model presents a new structure that integrates community resources, health care, and patient self-management into a more comprehensive and integrated system: [137]
   - Offices linked to community resources, such as exercise programs
• Support for self-management, which requires educating patients and families about assessment and monitoring
• An expanded practice team that supports self-management and adherence to evidence-based care pathways
• Clinical information systems that remind the team of routine tests and treatments and monitor the practice’s adherence to goals [137,138]

6. Reimbursement
Coding for the care of children with obesity and related co-morbidities is relatively straightforward, but ensuring payment for such services is more complicated. [139]
• Many insurance carriers will deny claims submitted with "obesity" codes (eg, 278.00), essentially carving out obesity-related care from the scope of benefits.
• Coding is, therefore, a two-tiered system: 1) submitting claims using appropriate codes and 2) practice-level issues of denial management and contract negotiation.
• In general, coding for the primary obesity-related medical diagnosis is more effective.

12. FINAL THOUGHTS
The potential future health care costs associated with pediatric obesity and its co-morbidities are staggering -- the surgeon general has predicted that preventable morbidity and mortality associated with obesity may exceed those associated with smoking. [140,141]

Pediatric obesity is not an individual child's problem, but a problem that involves the entire family and the community. With no safe, effective pharmacologic agent on the horizon, there is no easy answer. Recommending a healthy diet and increased physical activity and counseling families on behavior change is the best approach to preventing and managing childhood obesity, but it is not easy. But it gets easier and more effective, the more it is practiced. [142]

If we remain complacent and expect overweight children to just "outgrow it," we will face even more alarming statistics in years to come. [143]

13. RESOURCE – LINKS

GENERAL INFORMATION
• AAP Information and Resources
  http://www.aap.org/obesity/
• CDC Information and Resources
  http://www.cdc.gov/obesity/resources.html
  http://www.cdc.gov/healthyyouyth/obesity/index.htm
• USDA - Steps to a Healthier Weight
  http://www.mypyramid.gov/steps/stepstohealthierweight.html

GUIDELINES
• AMA Expert Committee on the Assessment, Prevention, and Treatment of Child and Adolescent Overweight and Obesity: A Summary Report
IMPLEMENTATION GUIDE FOR EXPERT COMMITTEE RECOMMENDATIONS

- Expert Committee Recommendations on the Assessment, Prevention and Treatment of Child and Adolescent Overweight and Obesity, 2007

TOOLS

- AIM to Change Toolkit – from the AAFP
  - Posters, inventories for assessments, BMI measuring tool, activity and nutrition prescription pads, communications and office systems guides
- Rapid Eating Assessment for Patients (REAP) http://bms.brown.edu/nutrition/acrobat/REAP%206.pdf
- Weight, Activity, Variety, & Excess Screener (WAVE) for Children http://www.einstein.yu.edu/diabetes/page.aspx?id=1252
- Pediatric obesity tools
  - Guidelines, BMI and BP charts, lifestyle prescription pads http://www.eatsmartmovemorenc.com/PediatricObesityTools/PediatricObesityTools.html
- Families Eat Smart and Move More
  - Program that targets families’ eating and activity habits in 4 sessions, put on by office for groups of families
  - Also includes handouts, posters http://www.eatsmartmovemorenc.com/Family.html

CODING

  - The American Academy of Pediatrics can answer specific coding questions through electronic mail (aapcodinghotline@aap.org)
- AAP Pediatric Coding Companion: http://coding.aap.org/index.aspx

CALCULATORS

• BMI percentile chart for boys:  
  http://www.cdc.gov/growthcharts/

• BMI percentile chart for girls:  
  http://www.cdc.gov/growthcharts/

• Training for using the growth charts:  
  http://www.cdc.gov/nccdphp/dnpa/growthcharts/training/

FOR ADOLESCENTS

• KidsHealth  
  http://kidshealth.org/teen/

• Body and Mind (BAM) from the CDC  
  http://www.bam.gov/

FOR PARENTS

• KidsHealth  
  http://kidshealth.org/parent/

FOR CLINICIANS

• Discovery Health CME program  
  Healthy Steps to Treating Childhood Obesity  
  http://discoveryhealthcme.discovery.com/beyond/miniPlayer.html?playerId=1336746932

• Childhood Obesity: What Families Can Do Together  
  http://members.kaiserpermanente.org/redirects/childhoodobesity/selectinfo.htm

• California Medical Association (CMA) Foundation’s Obesity Prevention Project Monograph  
  “Inspiring Change in our Communities: Physician Champions Making a Difference”  
14. RESOURCES – TOOLS

○ Recommended Terminology for BMI Categories
○ Encounter Documentation Guide
○ CDC BMI Percentile Chart for Boys
○ CDC BMI Percentile Chart for Girls
○ Assessment and Intervention Protocol
○ Symptoms and Signs of Conditions Associated with Obesity
○ Laboratory Assessments to be Considered in Primary Care Settings
○ Rapid Dietary Assessment Measures
○ Behavior Change Form
○ Stages of Treatment for Overweight and Obese Adolescents
○ Fifteen-Minute Obesity Prevention Protocol
○ Diagnostic Codes for Obesity-Related Visits
○ Coding for Obesity-Related Preventive Care
○ Assessing Programs for Referral

1. Recommended Terminology for BMI Categories

<table>
<thead>
<tr>
<th>BMI Category</th>
<th>Former Terminology</th>
<th>Recommended Terminology</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 5th percentile</td>
<td>Underweight</td>
<td>Underweight</td>
</tr>
<tr>
<td>5th–84th percentile</td>
<td>Healthy weight</td>
<td>Healthy weight</td>
</tr>
<tr>
<td>85th–94th percentile</td>
<td>At risk of overweight</td>
<td>Overweight</td>
</tr>
<tr>
<td>≥95th percentile</td>
<td>Overweight or obesity</td>
<td>Obesity</td>
</tr>
</tbody>
</table>
2. Encounter Documentation Guide

Encounter Documentation Tool: Key Elements to Include in an Encounter Form

- Most practices make their own form for a pre-visit survey; this list includes some things to consider

<table>
<thead>
<tr>
<th>1. Vital Signs:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Height and Weight</td>
</tr>
<tr>
<td>• BMI</td>
</tr>
<tr>
<td>• BMI percentile</td>
</tr>
<tr>
<td>• Weight classification</td>
</tr>
<tr>
<td>• &lt; 5%: Underweight</td>
</tr>
<tr>
<td>• 5% - 84%: Healthy weight</td>
</tr>
<tr>
<td>• 85% - 94%: Overweight</td>
</tr>
<tr>
<td>• ≥ 95%: Obese</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Current Health Habits</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Nutrition</td>
</tr>
<tr>
<td>• Fruits and vegetables</td>
</tr>
<tr>
<td>• Sugar sweetened beverages</td>
</tr>
<tr>
<td>• Milk – type and quantity</td>
</tr>
<tr>
<td>• Snacking – types and quantity</td>
</tr>
<tr>
<td>• Physical Activity</td>
</tr>
<tr>
<td>• Type and quantity</td>
</tr>
<tr>
<td>• Screen Time</td>
</tr>
<tr>
<td>• Type and quantity</td>
</tr>
<tr>
<td>• TV/computer in the room where the child sleeps</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Review of Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Constitutional</td>
</tr>
<tr>
<td>• Sleep habits</td>
</tr>
<tr>
<td>• Fatigue/lethargy</td>
</tr>
<tr>
<td>• Respiratory</td>
</tr>
<tr>
<td>• Snoring</td>
</tr>
<tr>
<td>• Wheezing/coughing</td>
</tr>
<tr>
<td>• Difficulty breathing</td>
</tr>
<tr>
<td>• Cardiovascular</td>
</tr>
<tr>
<td>• Chest pain</td>
</tr>
<tr>
<td>• Gastrointestinal</td>
</tr>
<tr>
<td>• Abdominal</td>
</tr>
<tr>
<td>• Pain/Vomiting/Constipation</td>
</tr>
<tr>
<td>• Skin</td>
</tr>
<tr>
<td>• Striae</td>
</tr>
<tr>
<td>• Neurologic</td>
</tr>
<tr>
<td>• Developmental delay</td>
</tr>
<tr>
<td>• Headache</td>
</tr>
<tr>
<td>• Genitourinary</td>
</tr>
<tr>
<td>• Menarche</td>
</tr>
<tr>
<td>• Oligo/Amenorrhea</td>
</tr>
<tr>
<td>• Musculoskeletal</td>
</tr>
<tr>
<td>• Hip/knee pain</td>
</tr>
<tr>
<td>• Limp</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>4. Family History</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Obesity</td>
</tr>
<tr>
<td>• Cardiovascular disease</td>
</tr>
<tr>
<td>• Hypertension</td>
</tr>
<tr>
<td>• Diabetes</td>
</tr>
<tr>
<td>• Depression</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5. Social History</th>
</tr>
</thead>
<tbody>
<tr>
<td>• School/Daycare</td>
</tr>
<tr>
<td>• Who lives at home?</td>
</tr>
<tr>
<td>• Who helps parent?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6. Past Medical History</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Birth weight – IUGR/LGA</td>
</tr>
<tr>
<td>• Mental health</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7. Medications</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>8. Physical Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Special attention to respiratory, musculoskeletal, skin exam</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>9. Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Weight classification</td>
</tr>
<tr>
<td>• Lab work-up</td>
</tr>
<tr>
<td>• Readiness to Change</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>10. Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Based on readiness to change and tailored to individual</td>
</tr>
<tr>
<td>• Goal setting worksheet if indicated</td>
</tr>
<tr>
<td>• Follow-up plans</td>
</tr>
<tr>
<td>• Referral to specialist</td>
</tr>
</tbody>
</table>

NICH, Jump Up and Go
3. CDC BMI Percentile Chart for Boys

2 to 20 years: Boys
Body mass index-for-age percentiles

NAME ____________________________ RECORD # __________

Date | Age | Weight | Stature | BMI* | Comments
-----|-----|--------|---------|------|----------

*To Calculate BMI: Weight (kg) x Stature (cm) x Stature (cm) x 15,000
or Weight (lb) x Stature (in) x Stature (in) x 703

Published May 30, 2006 (modified 10/6/09).
SOURCE: Developed by the National Center for Health Statistics in collaboration with
the National Center for Chronic Disease Prevention and Health Promotion (2006).
http://www.cdc.gov/growthcharts

© 2011. American College of Preventive Medicine. All rights reserved.
4. CDC BMI Percentile Chart for Girls

<table>
<thead>
<tr>
<th>Name</th>
<th>Record #</th>
</tr>
</thead>
</table>

2 to 20 years: Girls

Body mass index-for-age percentiles

<table>
<thead>
<tr>
<th>Date</th>
<th>Age</th>
<th>Weight</th>
<th>Height</th>
<th>BMI</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
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</table>

To Calculate BMI: Weight (kg) + Height (cm) + Height (cm) x 10,000
or Weight (lb) + Height (in) + Height (in) x 703

Published May 20, 2000 (Modified 9/1/00).
SOURCE: Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (2000).
http://www.cdc.gov/growthcharts

Safer, healthier, people
5. Assessment and Intervention Protocol

FIGURE 1. Universal assessment of obesity risk and steps to prevention and treatment. DM indicates diabetes mellitus.

6. Symptoms and Signs of Conditions Associated with Obesity

<table>
<thead>
<tr>
<th>SYMPTOMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Anxiety, school avoidance, social isolation (Depression)</td>
</tr>
<tr>
<td>• Polyuria, polydipsia, weight loss (Type 2 diabetes mellitus)</td>
</tr>
<tr>
<td>• Headaches (Pseudotumor cerebri)</td>
</tr>
<tr>
<td>• Night breathing difficulties (Sleep apnea, hypoventilation syndrome, asthma)</td>
</tr>
<tr>
<td>• Daytime sleepiness (Sleep apnea, hypoventilation syndrome, depression)</td>
</tr>
<tr>
<td>• Abdominal pain (Gastroesophageal reflux, gall bladder disease, constipation)</td>
</tr>
<tr>
<td>• Hip or knee pain (Slipped capital femoral epiphysis)</td>
</tr>
<tr>
<td>• Oligomenorrhea or amenorrhea (Polycystic ovary syndrome)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SIGNS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Poor linear growth (Hypothyroidism, Cushing’s, Prader-Willi syndrome)</td>
</tr>
<tr>
<td>• Dysmorphic features (Genetic disorders, including Prader–Willi syndrome)</td>
</tr>
<tr>
<td>• Acanthosis nigricans (NIDDM, insulin resistance)</td>
</tr>
<tr>
<td>• Hirsutism and Excessive Acne (Polycystic ovary syndrome)</td>
</tr>
<tr>
<td>• Violaceous striae (Cushing’s syndrome)</td>
</tr>
<tr>
<td>• Papilledema, cranial nerve VI paralysis (Pseudotumor cerebri)</td>
</tr>
<tr>
<td>• Tonsillar hypertrophy (Sleep apnea)</td>
</tr>
<tr>
<td>• Abdominal tenderness (Gall bladder disease, GERD, Nonalcoholic fatty liver disease (NAFLD))</td>
</tr>
<tr>
<td>• Hepatomegaly (NAFLD)</td>
</tr>
<tr>
<td>• Undescended testicle (Prader-Willi syndrome)</td>
</tr>
<tr>
<td>• Limited hip range of motion (Slipped capital femoral epiphysis)</td>
</tr>
<tr>
<td>• Lower leg bowing (Blount’s disease)</td>
</tr>
</tbody>
</table>


7. Laboratory Assessments to be Considered in Primary Care Settings

<table>
<thead>
<tr>
<th>BMI</th>
<th>Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>85th–94th percentile, with no risk factors</td>
<td>Fasting lipid levels</td>
</tr>
</tbody>
</table>
| 85th–94th percentile, with risk factors (e.g., family history of obesity-related diseases, elevated blood pressure, elevated lipid levels, or tobacco use) | Fasting lipid levels
|                              | AST* and ALT* levels                        |
|                              | Fasting glucose levels                      |
| ≥ 95th percentile            | Fasting lipid levels
|                              | AST and ALT levels                          |
|                              | Fasting glucose levels                      |

* AST indicates aspartate aminotransferase; ALT, alanine aminotransferase.

8. Rapid Dietary Assessment Measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>Internet Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>WAVE</td>
<td><a href="http://bms.brown.edu/nutrition/acrobat/wave.pdf">http://bms.brown.edu/nutrition/acrobat/wave.pdf</a></td>
</tr>
<tr>
<td>REAP</td>
<td><a href="http://bms.brown.edu/nutrition/acrobat/REAP%206.pdf">http://bms.brown.edu/nutrition/acrobat/REAP%206.pdf</a></td>
</tr>
<tr>
<td>REAP physician key</td>
<td><a href="http://bms.brown.edu/nutrition/acrobat/reapmdkey.pdf">http://bms.brown.edu/nutrition/acrobat/reapmdkey.pdf</a></td>
</tr>
<tr>
<td>Rate Your Plate – For patients</td>
<td><a href="http://bms.brown.edu/nutrition/quiz.html">http://bms.brown.edu/nutrition/quiz.html</a></td>
</tr>
<tr>
<td></td>
<td><a href="http://bms.brown.edu/nutrition/acrobat/RYP.pdf">http://bms.brown.edu/nutrition/acrobat/RYP.pdf</a></td>
</tr>
</tbody>
</table>

* WAVE indicates Weight, Activity, Variety, and Excess
* REAP indicates Rapid Eating and Activity Assessment.

9. Behavior Change Form

**How Important is it to Make a Change?**
**How Ready am I to Make a Change Now?**

<p>| | | | | | | | | | |</p>
<table>
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<tbody>
<tr>
<td><strong>1</strong></td>
<td><strong>2</strong></td>
<td><strong>3</strong></td>
<td><strong>4</strong></td>
<td><strong>5</strong></td>
<td><strong>6</strong></td>
<td><strong>7</strong></td>
<td><strong>8</strong></td>
<td><strong>9</strong></td>
<td><strong>10</strong></td>
</tr>
</tbody>
</table>

**Nutrition**
Change:

How will I make this happen?

Who or what can help me?

My strengths:

My family’s strengths:

What can get in the way?

**Physical Activity**
Change:

How will I make this happen?

Who or what can help me?

My strengths:

My family’s strengths:

What can get in the way?

**How Confident Am I That I Can Make This Change?**

<p>| | | | | | | | | | |</p>
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<td><strong>4</strong></td>
<td><strong>5</strong></td>
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<td><strong>10</strong></td>
</tr>
</tbody>
</table>

RETURN VISIT: _______________________________________

10. Stages of Treatment for Overweight and Obese Adolescents

<table>
<thead>
<tr>
<th>STEP</th>
<th>SAMPLE LANGUAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1. Assess</strong></td>
<td></td>
</tr>
<tr>
<td>Assess weight and height and convert to BMI</td>
<td>We checked your child’s BMI, which is a way of looking at weight and taking into consideration how tall someone is. Your child’s BMI is in the range where we start to be concerned about extra weight causing health problems.</td>
</tr>
<tr>
<td>Provide BMI information</td>
<td></td>
</tr>
<tr>
<td>Elicit parent’s/child’s concerns</td>
<td>What concerns, if any, do you have about your [child’s] weight? “He did jump 2 sizes this year. Do you think he might get diabetes someday?”</td>
</tr>
<tr>
<td>Reflect/probe</td>
<td>So you’ve noticed a big change in his size and you are concerned about diabetes down the road. What makes you concerned about diabetes in particular?</td>
</tr>
<tr>
<td>Assess sweetened beverage, fruit, and vegetable intake, television viewing and other sedentary behaviors, frequency of fast food or restaurant eating, consumption of breakfast, and other factors</td>
<td>(Use verbal questions or brief questionnaires to assess key behaviors) Example: About how many times a day does your child drink soda, sports drinks, or powdered drinks like Kool-Aid?</td>
</tr>
<tr>
<td>Provide positive feedback for behavior(s) in optimal range</td>
<td>You are doing well with sugared drinks.</td>
</tr>
<tr>
<td>Elicit response</td>
<td>“I know it’s not healthy. He used to drink a lot of soda, but now I try to give him water whenever possible. I think we are down to just a few sodas a week.”</td>
</tr>
<tr>
<td>Reflect/probe</td>
<td>So, you have been able to make a change without too much stress.</td>
</tr>
<tr>
<td>Provide neutral feedback for behavior(s) not in optimal range</td>
<td>Your child watches 4 hours of television on school days.</td>
</tr>
<tr>
<td>Elicit response</td>
<td>What do you think about that? “I know it’s a lot, but he gets bored otherwise and starts picking an argument with his little sister.”</td>
</tr>
<tr>
<td>Reflect/probe</td>
<td>So, watching TV keeps the household calm.</td>
</tr>
<tr>
<td><strong>Step 2. Set agenda</strong></td>
<td></td>
</tr>
<tr>
<td>Query which, if any, of the target behaviors the adolescent may be interested in changing or which might be easiest to change</td>
<td>We’ve talked about eating too often at fast food restaurants, and how television viewing is more hours than you’d like. Which of these, if either of them, do you think you and your child could change?</td>
</tr>
<tr>
<td>Agree on possible target behavior</td>
<td>“Well, I think fast food is somewhere we could do better. I don’t know what he would do if he couldn’t watch television. Maybe we could cut back on fast food to once a week.”</td>
</tr>
<tr>
<td></td>
<td>That sounds like a good plan.</td>
</tr>
</tbody>
</table>
### Step 3. Assess motivation and confidence

| Assess willingness/importance | On a scale of 0 to 10, with 10 being very important, how important is it for you to reduce the amount of fast food he eats? |
| Assess confidence | On a scale of 0 to 10, with 10 being very confident, assuming you decided to change the amount of fast food he eats, how confident are you that you could succeed? |
| Explore importance and confidence ratings with the following probes: |  |
| Benefits | You chose 6. Why did you not choose a lower number? “I know all that grease is bad for him.” |
| Barriers | You chose 6. Why did you not choose a higher number? “It’s quick and cheap and he loves it, especially the toys and fries.” |
| Reflection | So there are benefits for both you and him. |
| Solutions | What would it take you to move to an 8? “Well, I really want him to avoid diabetes. My mother died of diabetes, and it wasn’t pretty; maybe if he started showing signs of it; maybe if I could get into cooking a bit more.” |

### Step 4. Summarize and probe possible changes

| Query possible next steps | So where does that leave you? OR |
| Probe plan of attack | From what you mentioned it sounds like eating less fast food may be a good first step. OR How are you feeling about making a change? |
| What might be a good first step for you and your child? | What might you do in the next week or even day to help move things along? OR |
| What ideas do you have for making this happen? | What might you do in the next week or even day to help move things along? OR |
| If patient does not have any ideas | If it’s okay with you, I’d like to suggest a few things that have worked for some of my patients. |
| Summarize change plan; provide positive feedback | Involve the child in cooking or meal preparation, order healthier foods at fast food restaurants, and try some new recipes at home. |

### Step 5. Schedule follow-up visit

| Agree to follow-up visit within x weeks/months | Let’s schedule a visit in the next few weeks/months to see how things went. |
| If no plan is made | Sounds like you aren’t quite ready to commit to making any changes now. How about we follow up with this at your child’s next visit? OR |
| If no plan is made | Although you don’t sound ready to make any changes, between now and our next visit you might want to think about your child’s weight gain and lowering his diabetes risk. |

### 12. Diagnostic Codes for Obesity-Related Visits

<table>
<thead>
<tr>
<th>CODE</th>
<th>DIAGNOSIS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary diagnoses for initial visit</strong></td>
<td></td>
</tr>
<tr>
<td>278.0</td>
<td>Obesity, unspecified</td>
</tr>
<tr>
<td>401.9</td>
<td>Essential hypertension, unspecified</td>
</tr>
<tr>
<td>611.1</td>
<td>Hypertrophy of breast</td>
</tr>
<tr>
<td>701.2</td>
<td>Acquired acanthosis nigricans</td>
</tr>
<tr>
<td>783.1</td>
<td>Abnormal weight gain</td>
</tr>
<tr>
<td>V18.0</td>
<td>Family history of diabetes mellitus</td>
</tr>
<tr>
<td>V18.1</td>
<td>Family history of endocrine or metabolic diseases</td>
</tr>
<tr>
<td>V61.20</td>
<td>Counseling for parent-child problem, unspecified</td>
</tr>
<tr>
<td>V62.89</td>
<td>Other psychological or physical stress, not elsewhere classified</td>
</tr>
<tr>
<td>V62.9</td>
<td>Unspecified psychosocial circumstances</td>
</tr>
<tr>
<td>V69.0</td>
<td>Lack of physical exercise</td>
</tr>
<tr>
<td>V69.1</td>
<td>Inappropriate diet and eating habits</td>
</tr>
<tr>
<td>V69.8</td>
<td>Other problems related to lifestyle; self-damaging behavior</td>
</tr>
<tr>
<td>V69.9</td>
<td>Problem related to lifestyle, unspecified</td>
</tr>
<tr>
<td><strong>Primary diagnoses for subsequent visits</strong></td>
<td></td>
</tr>
<tr>
<td>V65.3</td>
<td>Dietary surveillance and counseling</td>
</tr>
<tr>
<td>V65.41</td>
<td>Exercise counseling</td>
</tr>
<tr>
<td>V65.49</td>
<td>Other specified counseling</td>
</tr>
</tbody>
</table>
13. Coding for Obesity-Related Preventive Care

<table>
<thead>
<tr>
<th>CODE</th>
<th>DESIGNATION/SITUATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Preventive medicine visit (a)</strong></td>
<td></td>
</tr>
<tr>
<td>99384–99385</td>
<td>New patient, preventive medicine visit; patient is 12–18 y of age</td>
</tr>
<tr>
<td>99394–99395</td>
<td>Established patient, preventive medicine visit; patient is 12–18 y of age</td>
</tr>
<tr>
<td><strong>Evaluation and management codes</strong></td>
<td></td>
</tr>
<tr>
<td>99201–99205</td>
<td>New patient, office or other outpatient visit</td>
</tr>
<tr>
<td>99212–99215</td>
<td>Established patient, office or other outpatient visit</td>
</tr>
<tr>
<td>99241–99245</td>
<td>Consultation, office, or other outpatient visit</td>
</tr>
<tr>
<td><strong>Health and behavior assessment or intervention (b)</strong></td>
<td></td>
</tr>
<tr>
<td>96150</td>
<td>Health and behavior assessment (eg, health-focused clinical interview, behavioral observations, psychophysiological monitoring, health-oriented questionnaires)</td>
</tr>
<tr>
<td>96151</td>
<td>Reassessment</td>
</tr>
<tr>
<td>96152</td>
<td>Health and behavior intervention</td>
</tr>
<tr>
<td>96153</td>
<td>Health and behavior intervention with ≥2 patients</td>
</tr>
<tr>
<td>96154</td>
<td>Health and behavior intervention with family, with patient present</td>
</tr>
<tr>
<td>96155</td>
<td>Health and behavior intervention with family, without patient present</td>
</tr>
<tr>
<td><strong>Medical nutrition therapy (b)</strong></td>
<td></td>
</tr>
<tr>
<td>97802</td>
<td>Medical nutrition therapy, initial assessment and intervention, individual, face to face with patient; each 15 min</td>
</tr>
<tr>
<td>97803</td>
<td>Medical nutrition therapy, reassessment and intervention, individual, face to face with patient; each 15 min</td>
</tr>
<tr>
<td>97804</td>
<td>Medical nutrition therapy, group, individual, face to face with patient; each 15 min</td>
</tr>
<tr>
<td><strong>Other codes (b)</strong></td>
<td></td>
</tr>
<tr>
<td>S9445</td>
<td>Patient education, not otherwise classified, nonphysician provider, individual, per session</td>
</tr>
<tr>
<td>S9446</td>
<td>Patient education, not otherwise classified, nonphysician provider, group, per session</td>
</tr>
<tr>
<td>S9449</td>
<td>Weight management classes, nonphysician provider, per session</td>
</tr>
<tr>
<td>S9452</td>
<td>Nutrition class, nonphysician provider, per session (c)</td>
</tr>
<tr>
<td>S9455</td>
<td>Diabetic management program, nurse visit</td>
</tr>
<tr>
<td>S9465</td>
<td>Nutritional counseling, dietician visit (c)</td>
</tr>
<tr>
<td><strong>No counseling provided (measurement only or pedometer download) (b)</strong></td>
<td></td>
</tr>
<tr>
<td>99211</td>
<td>Minimal visit, established patient (nurse visit)</td>
</tr>
</tbody>
</table>

*a. Counseling is included in the preventive medicine visit codes. The total time spent with the patient and the amount of counseling time must be documented, and discussion items must be delineated in the medical record.

b. These codes can be used for subsequent visits, including those with a nurse, counselor, or dietician.

c. For nutritional therapy assessment and/or intervention performed by the physician, the evaluation and management codes should be used.*
14. Assessing Stage 3 or 4 Program for Referral

To help primary care physicians identify facilities capable of treating adolescent patients.

ASSESSING COMMERCIAL WEIGHT LOSS PROGRAMS

1. **Do you have a program for adolescents?**
The program should have options specific for children and adolescents or should be targeted specifically for the child’s age group.

2. **What type of counseling/behavior modification models do you follow?**
The program should provide behavior modification that (a) emphasizes positive efforts and rewards success, (b) is sensitive to child/adolescent body image issues, (c) is culturally appropriate, (d) incorporates family members both to change the environment and to reinforce progress, (e) incorporates all 3 elements of weight loss/management (behavior, eating, and activity), and (f) meets frequently enough to support the child’s efforts and to monitor progress toward established goals.

3. **Do you offer nutrition and exercise counseling/education?**
Programs should provide nutrition and exercise counseling/education tailored to the needs of the adolescent or child. Programs should have trained professionals conducting the sessions.

4. **Must participants purchase proprietary meals? What are the initial and long-term costs?**
Initial fees, proprietary meals, and recurring costs, and how they will affect the patient’s participation, should be factored into the costs of the program. Proprietary meals can be costly, and no studies have examined their effect for children or adolescents.

5. **Do you offer culturally appropriate services?**
The program should offer culturally appropriate services.

6. **What are your immediate and long-term weight loss results?**
Immediate weight loss should not be more than 2 lb/week. The percentage of clients who are able to maintain adequate weight loss should be determined.

7. **What is your attrition rate?**
The likelihood of patient success in program can be gauged by inquiring about the program’s attrition rate.

8. **Do you advocate complementary/alternative weight loss methods?**
Programs that advocate complementary/alternative weight loss methods should use researched or reasonably approved methods, without the use of over-the-counter medications or products.

ASSESSING BARIATRIC SURGERY SERVICES

1. **Are you affiliated with a tertiary care center or pediatric hospital?**
Bariatric centers should be affiliated with a pediatric tertiary hospital.

2. **Do you have specific guidelines for adolescents?**
There should be specific guidelines for adolescents.

3. **What are your enrollment criteria?**
The enrollment criteria should include the following: (a) patients who have been unable to achieve significant reduction in BMI (<99th percentile) through nonsurgical means, including the use of medications, over a period of >6 months; (b) patients with BMI of ≥99th percentile or BMI of ≥40 kg/m² who are demonstrating the complications of diabetes, cardiovascular disease, or other co-
morbidities of obesity or patients with BMI of $\geq 50 \text{kg/m}^2$ without complications, and (c) patients and families that demonstrate the ability to follow the behavior modifications and adapt to the psychological burdens associated with the child’s condition and expected outcomes.

4. **Do you have a multidisciplinary team (with mental health care workers, dietitians, exercise specialists, and case managers)?**
The center should have a multidisciplinary team (with mental health care workers, nutritionists/dietitians, exercise specialists, and case managers) with specific training to address pediatric concerns.

5. **Do you offer preoperative and postoperative weight loss/behavior modification, with diet/exercise and/or medication?**
There should be both preoperative and postoperative weight loss/behavior modification, with diet/exercise and/or medication.

6. **What surgical options do you provide?**
The surgical options should be approved for use in adolescents. Currently, Roux-en-Y gastric bypass is the only bariatric surgical procedure approved by the FDA for use in adolescents. However, other methods are currently in clinical trials.

7. **What are the long-term potential complications? What are your long-term results?**
Long-term complications include delayed healing, multiple operations (including skin revision), and malnourishment. Immediate weight loss results should be within accepted guidelines, and long-term weight loss should be considered with respect to continued development.

8. **What is the postoperative follow-up care, including duration?**
Postoperative follow-up care should include intensive nutritional guidance with attention to micronutrient balance and monitoring and psychological support for a minimum of 6 months to 1 year; this can be in an individual or group setting.

9. **How are primary care/pediatric health concerns integrated?**
The primary care pediatrician should be integrated into the process so that ongoing pediatric health issues can be addressed and monitored after weight maintenance has been achieved.

10. **What is the financial burden?**
The bariatric center should help in securing adequate financial support or facilitate minimization of the financial burden to the patient and family. It should be stated that the center will facilitate incorporation of the patient’s lifestyle changes (diet and special health needs) at the child’s school, to minimize the impact on the child’s psychosocial and educational environment.
15. REFERENCES


7. National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion. 2000. Available at: http://www.cdc.gov/growthcharts


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139. AAP. Obesity and Related Co-Morbidities Coding Fact Sheet for Primary Care Pediatricians, Aug 2007; available at: http://practice.aap.org/content.aspx?id=1972

