

CHILDHOOD  
WEIGHT

MANAGEMENT

MEDICAL

GUIDELINE

## Childhood Obesity Epidemic

The rapid increase in the prevalence of childhood obesity has alarmed public health agencies, health care clinicians, health care researchers, and the general public. On the basis of measured heights and weights from nationally representative samples of US children assessed approximately every 5 years, obesity prevalence has increased from ~5% in 1963-1970 to 17% in 2003-2004. This number remained steady at 17% in 2011-2012, with an encouraging decrease in the prevalence of obesity among children aged 2 to 5 years from 13.9% in 2003-2004 to 8.4% in 2011-2012.

Obesity and overweight are defined on the basis of age- and gender-specific BMI normative values that were established when the distribution of BMI values was constant. The increase in obesity prevalence is therefore measured against a stable cutoff point, the 95th percentile BMI for gender and age.

### Terminology for BMI Categories

BMI Category	Former Terminology	Recommended Terminology
<5th percentile	Underweight	Underweight
5th–84th percentile	Healthy weight	Healthy weight
85th–94th percentile	At risk of overweight	Overweight
≥95th percentile	Overweight or obesity	Obesity

### Universal Assessment of Obesity Risk

These recommendations support a shift from simple identification of obesity, which often occurs when the condition is obvious and intractable, to universal assessment, universal preventive health messages, and early intervention. If primary care providers are to have an impact on the childhood obesity epidemic, then their best approach is assessment of obesity risk for all patients, with anticipatory guidance on healthy behaviors to minimize that risk.

### Target Behaviors

According to the Expert Committee Recommendations Regarding the Prevention and Treatment of Child and Adolescent Overweight and Obesity: Summary Report from 2007, clinicians should advise patients and their families to adopt and to maintain the following specific eating, physical activity, and sedentary behaviors. These healthy habits may help prevent excessive weight gain and also are unlikely to cause harm, on the basis of current knowledge. The level of evidence is indicated, and the prevention report provides references.

Evidence supports the following:

1. limiting consumption of sugar-sweetened beverages;
2. encouraging consumption of diets with recommended quantities of fruits and vegetables; the current recommendations from the 2010 US Department of Agriculture (USDA) Dietary Guidelines for Americans can be found at <http://www.cnpp.usda.gov/dietaryguidelines.htm> including more detailed consumer information about the “Choose My Plate” initiative at <http://www.choosemyplate.gov/>
3. limiting television and other screen time (the American Academy of Pediatrics recommends no television viewing before 2 years of age and thereafter no more than 2 hours

of television viewing per day), by allowing a maximum of 2 hours of screen time per day and removing televisions and other screens from children's primary sleeping area (although a relationship between obesity and screen time other than television viewing, such as computer games, has not been established, limitation of all screen time may promote more calorie expenditure);

4. eating breakfast daily;
5. limiting eating out at restaurants, particularly fast food restaurants (frequent patronage of fast food restaurants may be a risk factor for obesity in children, and families should also limit meals at other kinds of restaurants that serve large portions of energy-dense foods);
6. encouraging family meals in which parents and children eat together (family meals are associated with a higher-quality diet and with lower obesity prevalence, as well as with other psychosocial benefits); and
7. Limiting portion size (the USDA provides recommendations about portions, which may differ from serving sizes on nutrition labels, and a product package may contain >1 serving size).

Additionally, the following behaviors are suggested, based on analysis of available data:

1. eating a diet rich in calcium (the USDA provides recommendations about serving size and daily number of dairy product servings);
2. eating a diet high in fiber;
3. eating a diet with balanced macronutrients (energy from fat, carbohydrates, and protein in proportions for age, as recommended by Dietary Reference Intake)  
[http://pediatrics.aappublications.org/content/120/Supplement\\_4/S164.full-ref-39#ref-39](http://pediatrics.aappublications.org/content/120/Supplement_4/S164.full-ref-39#ref-39);
4. encouraging exclusive breastfeeding to 6 months of age and maintenance of breastfeeding after introduction of solid food to 12 months of age and beyond, consistent with American Academy of Pediatrics recommendations;
5. promoting moderate to vigorous physical activity for at least 60 minutes each day; and
6. Limiting consumption of energy-dense foods.

## **TREATMENT**

### **Goals**

The primary goal of obesity treatment is improvement of long-term physical health through permanent healthy lifestyle habits. Implementation of these habits alone will lead to improved weight (weight loss or weight maintenance during linear growth) for some children, but other children and youths may need additional focused efforts to achieve negative energy balance. Others may need additional help with behavior modification strategies to develop and to sustain healthy habits. Emotional health (good self-esteem and appropriate attitudes toward food and body) is also an important outcome. To achieve these goals, the treatment writing group recommended that providers present a staged approach, with 4 treatment stages of increasing intensity. Patients can begin at the least-intensive stage and advance depending on responses to treatment, age, degree of obesity, health risks, and motivation. Providers may identify some obese youths who are motivated to begin behavior change at a more-intensive stage. This approach may lead to greater success when obesity is more severe, as long as the patient is motivated.

### **Outcomes**

The establishment of permanent healthy lifestyle habits is a good outcome, regardless of weight change, because of the long-term health benefits of these behaviors. Improvement in medical conditions is also an important sign of long-term health benefits. The metric for improved weight

is BMI percentile, generally to <85th percentile, although some children are healthy in the overweight category (85th–94th percentile). Although improvement in BMI percentile is the goal, monitoring this metric in the short-term with BMI curves may be difficult. Serial weight measurements can reflect energy balance in the short-term. Weight maintenance leads to reductions in absolute BMI because of ongoing linear growth, and even slow weight gain can result in lower BMI percentiles because the BMI for a given percentile curve increases with age. In general, younger and more mildly obese children should change weight more gradually than older and severely obese youths. When a patient's weight or BMI percentile does not improve as desired over 3 to 6 months of planned treatment, the provider and family should consider advancing to the next, more-intensive stage of treatment.

### **Staged Treatment**

This approach promotes brief, office-based intervention for the greatest number of overweight and obese children and then a systematic intensification of efforts, tailored to the capacity of the clinical office, the motivation of the family, and the degree of obesity, with the most aggressive treatment stage being considered only for those who have not responded to other interventions.

Providers' offices need to prepare by implementing a system for evaluation; by identifying resources, such as pediatric dietitians or behaviorists, or training staff members for diet and activity assessments; and by identifying community resources and referral centers, if available. Referral centers may emerge in response to the needs of area practices. For each stage of obesity treatment, the expert committee has recommended a process for implementation, suggesting how the primary care provider can provide this care or identify support beyond the office.

### **Stages of Obesity Treatment**

#### **Stage 1: Prevention Plus**

As a first step, overweight and obese patients and their families could focus on basic healthy lifestyle eating and activity habits that form the obesity prevention strategies. However, the outcome would be improved BMI status rather than maintained healthy BMI, and the provider would offer more-frequent monitoring to motivated patients and families.

Specific healthy eating and activity habits are as follows.

1. follow the “choose my plate” guidelines as by the USDA ([www.choosemyplate.gov](http://www.choosemyplate.gov));
2. Minimize sugar-sweetened beverages, such as soda, juices, sports drinks, and punches. Ideally, these beverages will be eliminated from a child's diet, although children who consume large amounts will benefit from reduction to 1 serving per day;
3. Decrease television viewing (and other forms of screen time) to  $\leq 2$  hours per day. If the child is <2 years of age, then no television viewing should be the goal. To assist with this change, the television should be removed from the room where the child sleeps;
4. Be physically active  $\geq 1$  hour each day. Unstructured play is most appropriate for young children. Older children should find physical activities that they enjoy, which may include sports, dance, martial arts, bike riding, and walking. Activity can be structured, such as a dance class, or unstructured, such as dancing to music at home, and children can perform several shorter periods of activity over the day;
5. prepare more meals at home rather than purchasing restaurant food;
6. eat at the table as a family at least 5 or 6 times per week;
7. consume a healthy breakfast every day;
8. involve the whole family in lifestyle changes;
9. allow the child to self-regulate his or her meals and avoid overly restrictive feeding behaviors;
10. Help families tailor behavior recommendations to their cultural values (suggest).

For implementation of Prevention Plus, the following points should be noted.

1. Families and providers can work together to identify the behaviors that are appropriate to target. Considerations include current behaviors that most contribute to energy imbalance, the family's cultural values and preferences, the family's specific financial situation, neighborhood, and schedule, and the motivation of the child and family to make particular changes. By using motivational interviewing techniques, the provider allows the child and family to determine the priority behaviors, which naturally integrates the family situation and values;
2. Patients may need to achieve the target behaviors in steps. For example, obese children may need to begin with 15 minutes of physical activity per day and work up to 60 minutes, or a family may choose 3 goals at the beginning and expand the number of targeted behaviors over time;
3. follow-up visit frequency should be tailored to the individual family, and motivational interviewing techniques may be useful to set the frequency;
4. the Prevention Plus stage of obesity treatment can take place in the office setting;
5. physicians, advanced practice nurses, physician assistants, and office nurses, with appropriate training, can provide this level of treatment;
6. After 3 to 6 months, if the child has not made appropriate improvement, the provider can offer the next level of obesity care, that is, structured weight management.

## **Stage 2: Structured Weight Management**

This level of obesity treatment is distinguished from Prevention Plus less by differences in the targeted behaviors and more by the support and structure provided to the child to achieve those behaviors. Specific eating and activity goals in addition to the goals in Prevention Plus are as follows:

1. a planned diet or daily eating plan with balanced macronutrients, in proportions consistent with Dietary Reference Intake recommendations, emphasizing foods low in energy density (such as those with high fiber or water content) (suggest);
2. structured daily meals and planned snacks (breakfast, lunch, dinner, and 1 or 2 scheduled snacks, with no food or calorie-containing beverages at other times, may reduce excess intake) (suggest);
3. additional reduction of television and other screen time to  $\leq 1$  hour per day (suggest);
4. planned, supervised, physical activity or active play for 60 minutes per day;
5. monitoring of these behaviors through use of logs (for example, the patient or family members can record the minutes spent watching television and can keep a 3-day recording of food and beverages consumed); and
6. Planned reinforcement for achieving targeted behaviors (suggest).

For implementation of structured weight management, the following points should be noted.

1. the eating plan requires a dietitian or a clinician who has received additional training in creating this kind of eating plan for children;
2. office staff members who have some training in motivational interviewing and in teaching of monitoring and reinforcement techniques can establish initial goals with families and see them for follow-up care;
3. Some families need a counselor for help with parenting skills, resolution of family conflict, or motivation; and this is about as hard to find as a peds dermatologist.
4. depending on the child and family, referral to a physical therapist or exercise therapist can help the child and family develop physical activity habits;
5. monthly office visits are probably most appropriate at this level;

6. a provider's office staff can provide much of this treatment, with some additional training;
7. Some practices may find group sessions to be effective and efficient.

### **Stage 3: Comprehensive Multidisciplinary Intervention**

This approach increases the intensity of behavior changes, the frequency of visits, and the specialists involved, to maximize support for behavior changes. Generally, this type of program would exceed the capacity of a primary care office to offer within the typical visit structure. However, an office or several offices could organize specialists to offer this kind of a program. Eating and activity goals are generally those of the structured weight management stage.

For implementation of comprehensive multidisciplinary intervention, the following points should be noted.

1. a structured program in behavior modification should include, at a minimum, food monitoring, short-term diet and physical activity goal setting, and contingency management;
2. negative energy balance resulting from structured dietary and physical activity changes is planned;
3. Parental participation in behavior modification techniques is needed for children <12 years of age. Parental involvement would be progressively less **tolerated by?** with older youths;
4. parents should be trained regarding improvement of the home environment (suggest);
5. systematic evaluation of body measurements, diet, and physical activity should be performed at baseline and at specified intervals throughout the program (suggest);
6. a multidisciplinary team with experience in childhood obesity, including a behavioral counselor (for example, social worker, psychologist, other mental health care provider, or trained nurse practitioner), registered dietitian, exercise specialist (physical therapist or other team member with training or a community program prepared to assist obese children), and primary care provider who continues to monitor medical issues and maintains a supportive alliance with the families, should be involved;
7. Frequent office visits should be scheduled; weekly visits for a minimum of 8 to 12 weeks seem to be most efficacious. Subsequently, monthly visits can help maintain new behaviors;
8. group visits may be more cost-effective and have therapeutic benefit;
9. an established pediatric weight management program may be best suited to provide this type of intervention if available;
10. Commercial weight management programs can be considered, but the primary care provider's office needs to screen the programs to ensure that the approach is healthy and appropriate for the age of the child.

### **Stage 4: Tertiary Care Intervention**

#### **Interventions**

The intensive interventions in this category may be offered to some severely obese youths. These interventions move beyond the goal of balanced healthy eating and activity habits that are the core of the other stages. Candidates for consideration should have attempted weight control in the comprehensive multidisciplinary intervention stage, should have the maturity to understand possible risks, and should be willing to maintain physical activity and, if consistent with the additional intervention, a healthy diet with appropriate behavior monitoring. However, lack of success with the comprehensive multidisciplinary intervention is not by itself an indication to move to this level of treatment.

The interventions listed below have been used for adolescents, and some patients may be candidates for one of these interventions. Consideration of each of these interventions depends on the patient and the resources in the geographic area.

### **Very Low-Calorie Diet**

There are few reports on the use of highly restrictive diets for children or adolescents. A restrictive diet was used as the first step in a childhood weight management program, followed by a mildly restrictive diet. Long-term outcome data have not been reported.

### **Weight Control Surgery**

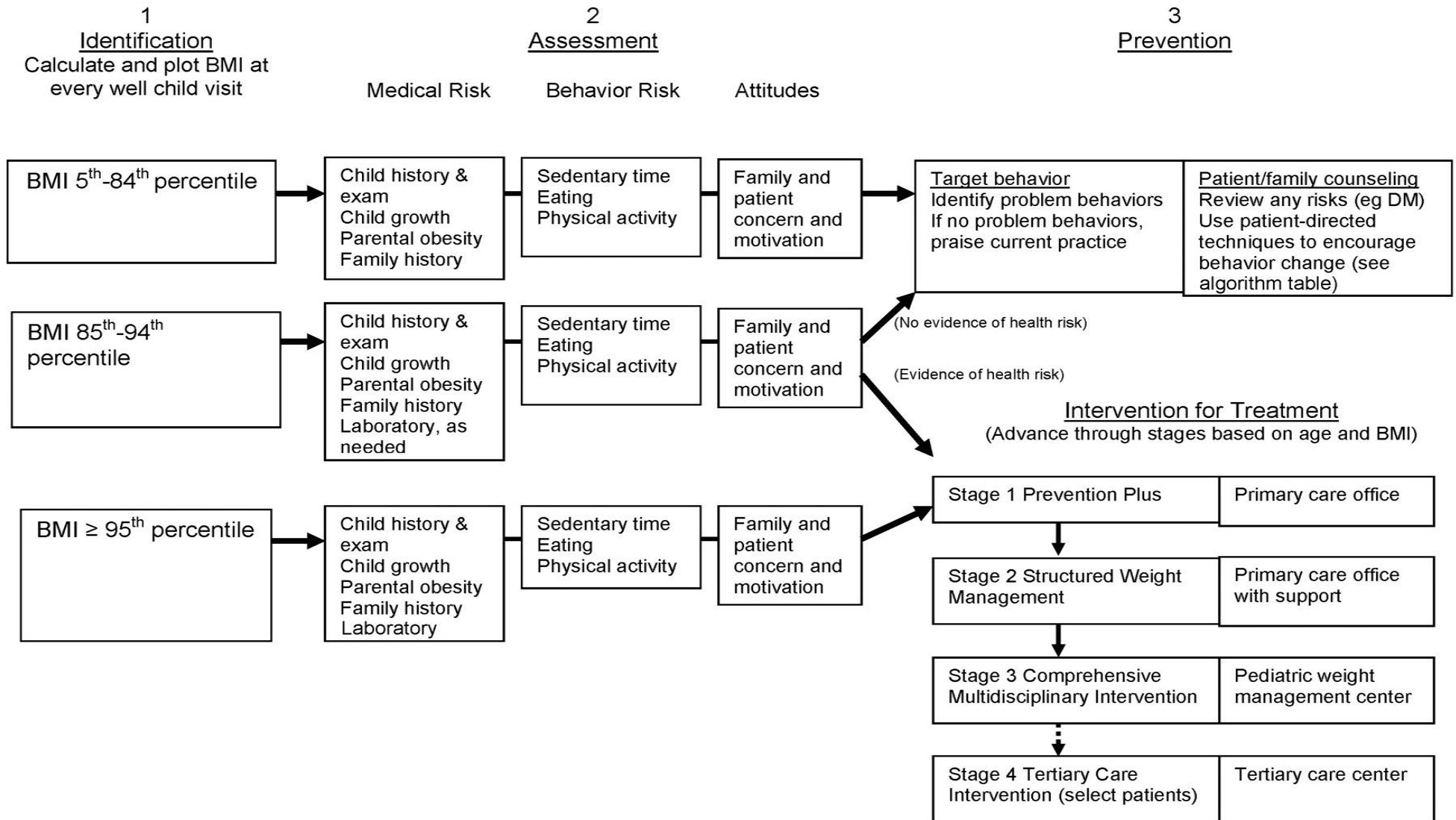
Because of the increasing number of youths with severe obesity that is not responsive to behavioral intervention, a few centers offer bariatric surgery, either gastric bypass or gastric banding. This treatment generally leads to substantial weight loss and improvement in medical conditions. However, perioperative risks, post-procedure nutritional risks, and the necessity of lifelong commitment to altered eating make this approach unattractive or inappropriate for many. Selection criteria proposed by Inge et al include BMI of  $\geq 40$  kg/m<sup>2</sup> with a medical condition or  $\geq 50$  kg/m<sup>2</sup>; physical maturity (generally 13 years of age for girls and  $\geq 15$  years of age for boys); emotional and cognitive maturity; and weight loss efforts for  $\geq 6$  months in a behavior-based treatment program. Those investigators also recommended strongly that bariatric surgery centers maintain databases, so that these criteria can be modified as appropriate on the basis of outcomes. Furthermore, adolescents who undergo such procedures need careful evaluation before surgery and prolonged nutritional and psychological support after surgery, and many youths who might otherwise qualify live too far from an adolescent bariatric center.

### **Implementation**

For implementation of tertiary care intervention, the following points should be noted.

1. these interventions should occur in pediatric weight management centers with comprehensive services;
2. The multidisciplinary team should have expertise in childhood obesity and its comorbidities, with patient care provided by a physician or nurse practitioner, registered dietitian, behavioral counselor, and exercise specialist. Standard clinical protocols for patient selection should evaluate patient age, degree of obesity, motivation and emotional readiness, previous efforts to control weight, and family support. Standard clinical protocols should be in place for evaluation before, during, and after intervention. These evaluations should focus on the physical and emotional effects of the treatment. These protocols should be established by a physician, dietitian, and behaviorist;
3. Some patients who are appropriate candidates for one of these interventions may not have access because programs are not available in their geographic area or insurance does not cover the treatment.

## Universal assessment of obesity risk and steps to prevention and treatment.





### Weight Goals and Intervention Stages, According to Age and BMI Categories

Age	BMI Category	Weight Goal to Improve BMI Percentile	Initial Intervention	Stage	Highest Intervention Stage
<2 y	Weight for height	NA	Prevention counseling		Prevention counseling
2–5 y	5th–84th percentile or 85th–94th percentile with no health risks	Weight velocity maintenance	Prevention counseling		Prevention counseling
	85th–94th percentile with health risks	Weight maintenance or slow weight gain	Prévention Plus (stage 1)		SWM (stage 2)
	≥95th percentile	Weight maintenance (weight loss of up to 1 lb./mo. may be acceptable if BMI is >21 or 22 kg/m <sup>2</sup> )	Prévention Plus (stage 1)		CMI (stage 3)
6–11 y	5th–84th percentile or 85th–94th percentile with no health risks	Weight velocity maintenance	Prevention counseling		Prevention counseling
	85th–94th percentile with health risks	Weight maintenance	Prévention Plus (stage 1)		SWM (stage 2)
	95th–99th percentile	Gradual weight loss (1 lb./mo. or 0.5 kg/mo.)	Prévention Plus (stage 1)		CMI (stage 3)
	>99th percentile	Weight loss (maximum is 2 lb./wk)	Prevention Plus (stage 1) or stage 2 or 3 if family is motivated		TCI (stage 4), if appropriate
12–18 y	5th–84th percentile or 85th–94th percentile with no health risks	Weight velocity maintenance; after linear growth is complete, weight maintenance	Prevention counseling		Prevention counseling
	85th–94th percentile with health risks	Weight maintenance or gradual weight loss	Prévention Plus (stage 1)		SWM (stage 2)
	95th–99th percentile	Weight loss (maximum is 2 lb./wk)	Prévention Plus (stage 1)		TCI (stage 4), if appropriate
	>99th percentile	Weight loss (maximum is 2 lb./wk)	Prevention Plus (stage 1) or stage 2 or 3 if patient and family are motivated		TCI (stage 4), if appropriate

SWM indicates structured weight management; CMI, comprehensive multidisciplinary intervention; TCI, tertiary care intervention; NA, not applicable.

If a child has obesity-related health risks, then the target outcome is a downward shift of the child's BMI curve. Serial weights, with the goals described here, are more easily assessed over weeks and months. In growing children, weight maintenance or even slow weight gain results in lower BMI.

### Early Periodic Screening, Diagnosis, and Treatment (EPSDT) 3-20 Years of Age

	Stage 1- Prevention	Stage 2- At-Risk	Stage 3	Stage 4
Risk Factors	<ul style="list-style-type: none"> <li>▪ Family History</li> <li>▪ Birth Weight</li> <li>▪ Socioeconomic Factors</li> <li>▪ Ethnic Factors</li> <li>▪ Cultural Factors</li> <li>▪ Environmental Factors</li> </ul>	<ul style="list-style-type: none"> <li>▪ Stage 1 <i>plus</i></li> <li>▪ Identified failure with prevention recommendations</li> <li>▪ Significant change in BMI/percentile</li> </ul>	<ul style="list-style-type: none"> <li>▪ Stage 2 <i>plus</i></li> <li>▪ Identified failure with Stage 2 recommendations</li> <li>▪ Complications in                             <ul style="list-style-type: none"> <li>- Dyslipidemia</li> <li>- Impaired Glucose Tolerance</li> <li>- Hypertriglyceridemia</li> <li>- Acanthosis nigricans</li> <li>- Elevated blood pressure</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Stage 3 <i>plus</i></li> <li>▪ Identified failure with Stage 3 recommendations</li> <li>▪ Identified willingness to change/desire to changes (tool)</li> <li>▪ Ages 7-20 years</li> </ul>
PCP Patient Obesity Identification  Use BMI/ Percentile Wheel	<ul style="list-style-type: none"> <li>▪ Calculate Body Mass Index (BMI) and growth percentile annually to identify excessive weight gain relative to linear growth</li> </ul>	<ul style="list-style-type: none"> <li>▪ PCP identified/ parent identified weight gain relative to linear growth</li> <li>▪ <b>75<sup>th</sup> percentile</b></li> </ul>	<ul style="list-style-type: none"> <li>▪ 85<sup>th</sup> percentile</li> </ul>	<ul style="list-style-type: none"> <li>▪ 95<sup>th</sup> percentile or greater</li> </ul>
PCP Parent/Child Education	<ul style="list-style-type: none"> <li>▪ Encourage breastfeeding</li> <li>▪ Promote healthy family eating patterns</li> <li>▪ Promote family physical activity</li> <li>▪ Recommend limitation of TV /video 2 hours per day</li> <li>▪ Monitor for changes in BMI or growth percentile (cross percentiles)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Stage 1 <i>plus</i></li> <li>▪ Refer medical nutritionist/ dietician consultation</li> <li>▪ Evaluate for depression</li> <li>▪ Recommendations for weight loss goals</li> </ul>	<ul style="list-style-type: none"> <li>▪ Stage 2 <i>plus</i></li> <li>▪ Recommend family exercise consultation</li> <li>▪ Increase family nutritionist/ dietician consultations</li> <li>▪ In-depth medical assessment, including lab work-up</li> </ul>	<ul style="list-style-type: none"> <li>▪ Stage 3 <i>plus</i></li> <li>▪ Increased family nutritionist/ dietician consultations</li> <li>▪ Increased exercise program visits</li> </ul>
Medical Nutrition Therapy/Dietician	N/A	2 visits per year	4 visits per year	1 x per week x 16 weeks, with follow up at 3, 6, 9 and 12 months

	<b>Stage 1- Prevention</b>	<b>Stage 2- At-Risk</b>	<b>Stage 3</b>	<b>Stage 4</b>
Supervised Exercise Program When available in area	N/A	N/A	1 x per week x 4 weeks with monthly follow-up visit (60 minute visits)	1 x per week x 16 weeks, with follow up at 3, 6, 9 and 12 months
Dépression Management	N/A	If indicated	If indicated	If indicated

## Definitions/Resources

**BMI (Body Mass Index)** is the standard obesity assessment in adults and its use in children provides a consistent measure across age groups. *Reference: Expert Committee Recommendations Regarding the Prevention and Treatment of Child and Adolescent Overweight and Obesity: Summary Report. Barlow Sarah E.M.D., M.P.H. Pediatrics 2007. Vol. 120: S164-192*

[http://pediatrics.aappublications.org/content/120/Supplement\\_4/S164.full](http://pediatrics.aappublications.org/content/120/Supplement_4/S164.full)

**Parent/Child Agreement** is a discussed and signed agreement between the provider and the member and/or their parent/guardian that they agree to follow recommendations and keep appointments scheduled.

**Calculating BMI** is body weight in kilograms divided by the square of height in Meters (kg/m<sup>2</sup>). *Reference: Expert Committee Recommendations Regarding the Prevention and Treatment of Child and Adolescent Overweight and Obesity: Summary Report. Barlow Sarah E.M.D., M.P.H. Pediatrics 2007. Vol. 120: S164-192.*

**Parent/Child Educational Tools:** *Reference the Center for Disease Control website for age appropriate educational tools for parents and children.*

### Establishing Weight Loss Goals

*Initial:* The first step in weigh control for overweight children is maintenance of baseline weight. Achieved through modest changes in diet and activity. Initial success can be the foundation for future changes.

*Prolonged Weight Maintenance:* Allows for a gradual decline in BMI/percentile as children grow in height, is a sufficient goal for many children.

*Weight Loss:* For children with a BMI at the 95<sup>th</sup> percentile or above, the family should be encouraged to demonstrate that they can maintain the child's weight and then clinicians should recommend additional changes in eating and activity to achieve weight loss of at least one pound per month, until they fall below the 85<sup>th</sup> percentile, with the primary goal of healthy eating and activity remaining.

*Expert Committee Recommendations Regarding the Prevention and Treatment of Child and Adolescent Overweight and Obesity: Summary Report. Barlow Sarah E.M.D., M.P.H. Pediatrics 2007. Vol. 120: S164-192.*

**Percentiles** are growth curves established for children. Latest growth charts from the CDC are available at [http://www.cdc.gov/growthcharts/clinical\\_charts.htm](http://www.cdc.gov/growthcharts/clinical_charts.htm)

**Healthy Family Eating Patterns:** *Reference Smart Eating Basic Nutrition Guidelines, Center for Disease Control website.*

**Provider Tools:** *Reference the Center for Disease Control website and the American Academy of Pediatrics website for information and educational tools.*

**In-depth Medical Work-up** includes family history, review of birth weight, cultural, ethnic and environmental factors, health assessment, willingness to change assessment tool completion, lab work including lipid profile (triglycerides), thyroid, glucose tolerance test.

**Willingness to change/Readiness to change** is the use of a standardized tool to determine readiness to change or lose weight. *Reference the Provider-based Assessment and Counseling Exercise program, co-sponsored by the Centers for Disease Control and Prevention and the Association for Teachers of Preventive Medicine.*

**Medical Nutritionist/Dietician Consultation** focused on establishing dietary goals for patients and their families that are well-balanced, healthy meals and a healthy approach to eating. These changes should be considered permanent rather than a temporary eating plan for rapid weight loss. *Expert Committee Recommendations Regarding the Prevention and Treatment of Child and Adolescent Overweight and Obesity: Summary Report. Barlow Sarah E.M.D., M.P.H. Pediatrics 2007. Vol. 120: S164-192.*

The practice of dietetics can be defined as nutritional counseling or education as components of preventive, curative, and restorative health care. *Ohio Board of Dietetics website.*

### Outcome Measures:

#### At 12 months:

- Reduction in percentile/BMI, or weight loss goal achieved

*If applicable:*

- Improved glucose tolerance
- Improved triglycerides
- Reduction in dyslipidemia

## Definitions/Resources

**At 24 months:**

- If weight loss goal achieved at 12 months, weight loss has been sustained, or
- If weight loss goal not achieved at 12 months, continued reduction in percentile/BMI or weight loss goal now achieved

*If applicable:*

- Sustained improvement in glucose tolerance (if applicable)
- Sustained improvement in triglycerides
- Sustained reduction in dyslipidemia

Re-measure outcomes through **annual** on-going measurement at PCP well-child visits.