



A Primary Care Guide to

Lifestyle and Weight Management for Children and Adolescents

This care process model (CPM) was created by a multidisciplinary team of physicians, registered dietitians, mental health specialists, and other healthcare providers at Intermountain Healthcare. Its purpose is to summarize and promote evidence-based approaches to lifestyle and weight management, and to facilitate implementation in routine primary care.

► What's New in this CPM?

- **Expansion in scope from the previous CPM.** Rather than focusing only on weight management, this CPM encompasses lifestyle behaviors that lead to overall health and well being — the same behaviors that support healthy weight management. In addition to physical activity, nutrition, and weight, new sections focus on sleep and social support.
- **Added focus on primary prevention.** Increased focus on lifestyle behaviors encourages preventive action before weight management becomes a problem. Counseling is most effective in primary prevention, especially if clinicians provide information in the context of the child's growth and health.^{AAP}
- **A family-centered perspective.** Family-based interventions are more effective than interventions focused on the child only.^{AAP} This CPM provides strategies for working together with families and for engaging families in lifestyle change to support prevention and/or treatment. See page 6.
- **Support for behavior change.** Behavior modification programs built on strong theoretical models have long been shown to be the best option for obesity treatment, both in adults and children.^{AAP} This CPM incorporates a behavior change framework that brings together individual and environmental factors to help patients and families develop and maintain healthier daily habits. See pages 8–10 for details.
- **Team-based care.** This CPM recommends a team approach that includes primary care providers, clinic staff, dietitians, mental health specialists, and other specialists as needed. See page 4 for details.
- **Coding and reimbursement guide.** The *Lifestyle and Weight Management for Children and Adolescents Coding and Reimbursement Guide* is published as a separate supporting tool. Click the link or order hard copies through iprintstore.org.
- **Messages consistent with the 8 to LiVe By program.** Messages and tools of the school and community 8 to LiVe By program are integrated into this document. The *Key Messages for Patients* in each section as well as the *Pediatric Lifestyle and Health Risk Questionnaire*, *Rx to LiVe Well*, and *Track It!* are all built around the same eight key actions.



Algorithm

including supporting notes and assessment tools

2–3

Building a Framework for Success

Clinic Team Processes	4–5
The Child in the Context of the Family	6–7
Behavior Change Framework	8–10

Evidence-based Guidelines

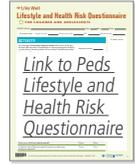
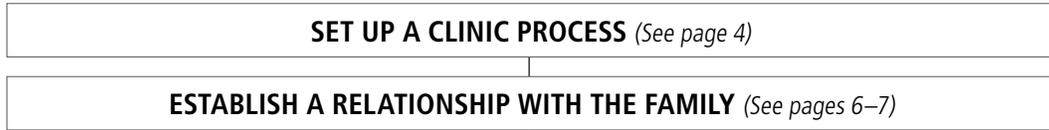
Physical Activity & Sedentary Behavior	11–13
Nutrition & Healthy Eating Habits	14–17
Sleep & Support	18–19
Weight Management Strategies	20–22
Follow-up Visits	23



METRICS — HOW WILL WE KNOW WE'RE SUCCESSFUL?

HEDIS contains the following performance measures: documented BMI percentile for age, nutrition counseling, and physical activity counseling. Intermountain will also track the Pediatric Physical Activity Vital Sign.

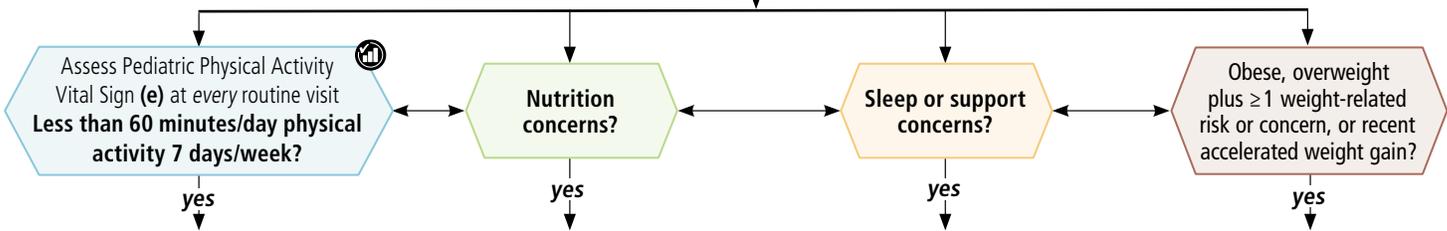
▶ ALGORITHM



Patient presents for well-child check or routine visit

1. Assess lifestyle and health behaviors, risks, and concerns. Document screening results in patient record.

- Administer **Pediatric Lifestyle and Health Risk Questionnaire (a)**
- Determine weight risk status with BMI percentile chart **(b)**
- Assess for weight-related risks and concerns **(c)**
- Assess for accelerated weight gain **(d)**



2. Advise on evidence-based interventions. Document counseling in patient record.

PHYSICAL ACTIVITY	NUTRITION	SLEEP, SUPPORT	WEIGHT
<ul style="list-style-type: none"> <input type="checkbox"/> Advise on importance of physical activity for physical and mental health. <input type="checkbox"/> Advise to start or increase physical activity to reach 60 minutes per day, 7 days per week. <input type="checkbox"/> Advise to reduce sedentary behaviors (sitting, screen time). Goal is less than 2 hours/day. <p style="text-align: center; background-color: #e6f2ff; padding: 2px;">→ more on pages 11–13</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Advise on key evidence-based nutrition guidelines to address patient's high risk areas: <ul style="list-style-type: none"> – Eat a healthy breakfast daily – Eat more fruits and vegetables – Limit or eliminate sweetened drinks – Eat meals as a family <input type="checkbox"/> Consider referral for nutrition education and counseling with a registered dietitian. <p style="text-align: center; background-color: #e6f2ff; padding: 2px;">→ more on pages 14–17</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Explain the significance of appropriate sleep in relation to overall health and weight management. <input type="checkbox"/> Advise to be positive about food and body image. <input type="checkbox"/> Assess for stress and eating disorders. <input type="checkbox"/> Activate MHI team as needed. <p style="text-align: center; background-color: #e6f2ff; padding: 2px;">→ more on pages 18–19</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Perform further medical evaluation: <ul style="list-style-type: none"> – Assess for underlying causes or conditions (f) and contributing medications (g). – Assess for secondary complications or comorbidities (h). <input type="checkbox"/> If reversible causes or complications, treat concurrently with weight concerns. <input type="checkbox"/> Determine weight maintenance or weight loss target based on BMI, age, and secondary complications (i). <p style="text-align: center; background-color: #e6f2ff; padding: 2px;">→ more on pages 20–23</p>

3. Agree on an area of focus, and assist patients and families with lifestyle changes.

- Agree on an area of focus. Consider the evidence-based recommendations on the *Rx to Live Well* as well as areas of readiness to change that patients/families marked on the *Pediatric Lifestyle and Health Risk Questionnaire*.
- Agree on weight maintenance or weight loss target if appropriate **(i).**
- Agree on goals based on evidence-based behaviors, and document them on a written prescription or care plan, such as *Rx to Live Well*, that both you and the patient sign **(i).**
- Engage your team members to assist with lifestyle changes. Use the *Making a Healthy Change* worksheet (found on the back of *Rx to Live Well*) to help the patient and family identify a specific, measurable goal and make a plan for success. See page 10 for more information.
- Provide resources and educational materials to support therapies, including *8 to Live By* booklet and *Track It!*

4. Arrange for referrals, reporting mechanisms, and follow-up appointments.

- As appropriate, refer patient to programs and specialists such as a registered dietitian.
- Commit to tracking and reporting processes.
- Schedule follow-up appointments. → more on follow-up on page 23
- Understand and use appropriate billing codes. → more on Coding and Reimbursement Guide

ACTIVATE CLINIC TEAM

ALGORITHM NOTES & ASSESSMENT TOOLS

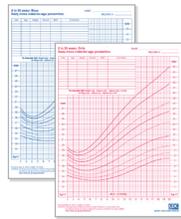
(a) Pediatric Lifestyle and Health Risk Questionnaire

• Use the *Pediatric Lifestyle and Health Risk Questionnaire*. When reviewing the questionnaire, take note of patient’s/family’s indication of readiness to address each area of behavior. Plan interventions around readiness.

(b) Determine weight risk status

1. Calculate BMI using automated EMR function or [online calculator](#) (Access at nccd.cdc.gov/dnpabmi/calculator.aspx).

2. Determine BMI-for-age percentile using CDC Clinical Growth Charts for [Boys age 2–20](#) or [Girls age 2–20](#) (Access at cdc.gov/growthcharts/clinical_charts.htm)



(Intermountain physicians can also use the “Growth chart” menu tab in iCentra.)

3. Determine weight status

- < 85th percentile NOT OVERWEIGHT
- 85th–94th percentile OVERWEIGHT
- ≥ 95th percentile OBESE
- (For infants and children under 2 years, overweight is determined as weight-for-length greater than the 95th percentile, not by BMI.)

(c) Weight-related risks and concerns (see page 22 for detail)

Even if BMI for age is below the 85th percentile, the patient may be at risk for overweight/obesity and require further evaluation if they have any of the following:

- Parental obesity. This increases risk of overweight children by 2- or 3-fold.
- Family history of type 2 diabetes, heart disease before age 55 in father or 65 in mother, high blood pressure, high cholesterol, or eating disorders.
- High blood pressure. Measure at every well-child visit or least once annually. Refer to [NIH chart](#) to measure percentiles, then see (h) below for guidelines.
- Patient or family concern about the patient’s weight.
- Medical signs and symptoms: short stature/developmental delay, acanthosis nigricans, hepatomegaly/right upper-quadrant pain, symptoms of sleep apnea.

(d) Accelerated weight gain (see page 22)

Accelerated weight gain is defined as **weight rising through two major centiles within one year**. For example, going from the 20th percentile to the 60th percentile crosses both the 25th and 50th major centile lines on the weight-for-age growth chart. Accelerated weight gain in infancy or early childhood is a risk factor for adult adiposity and obesity.^{ONG}

(e) Pediatric Physical Activity Vital Sign

Pediatric Physical Activity Vital Sign: On average, how many days per week does your child get at least 60 minutes of moderate to vigorous physical activity or play (heart beating faster than normal, breathing harder than normal)?

↓ **For patients who are obese or overweight with ≥ 1 weight-related concern, OR with recent accelerated weight gain** ↓

(f) Possible underlying causes or conditions

Conditions	Whom to test	Tests/referrals
Endocrine • Thyroid disorder • Cushing syndrome	Short stature, goiter, history of decelerated linear growth, or Cushingoid appearance	• TSH • 24-hour urine cortisol OR late-night salivary cortisol ^{NE}
Genetic Prader-Willi, Bardet-Biedl, Beckwith-Wiedemann, and other genetic syndromes	Developmental delay, dysmorphic features (short stature, big tongue, large head, facial dysmorphism), infantile obesity, hypogonadism	Refer for genetic testing/counseling

(g) Medications that may contribute to weight gain^{AHQ}

- High-dose, chronic glucocorticoid treatment
- Progestins (e.g. depot medroxyprogesterone acetate, norethindrone)
- Valproate
- Tricyclic antidepressants (e.g. imipramine, amitriptyline)
- Cyproheptadine
- Trazodone
- Atypical neuroleptics, e.g., olanzapine, risperidone, quetiapine, ziprasidone, aripiprazole

(i) Weight Maintenance or Weight-loss Targets^{SPE}

		OVERWEIGHT (85–95%ile)	OBESE (> 95 percentile)
Age 2–7 years	No secondary complications	MAINTENANCE*	MAINTENANCE*
	Secondary complications	MAINTENANCE*	LOSS [no more than 1 pound (0.5 kg) per month]
Age > 7 years	No secondary complications	MAINTENANCE*	LOSS [2–4 pounds (1–2 kg) per month]
	Secondary complications	LOSS [2–4 pounds (1–2 kg) per month]	LOSS [up to 1–2 pounds (0.5 kg) per week]

(h) Secondary complications or comorbidities

Since obesity contributes to the development of many secondary complications, children should be screened for the conditions below, treated concurrently, and monitored.

Conditions	Whom to test	Tests/referrals
Dyslipidemia	• Overweight or obese	• Random total cholesterol and HDL to calculate non-HDL cholesterol; if > 145, fasting lipid profile
Hypertension	• Everyone	• Over 95th percentile for gender, age, and height; confirmed at 3 consecutive visits
Hyperglycemia	• Age 10 (or onset of puberty if younger) AND • Family/ethnic history OR signs of insulin resistance (acanthosis nigricans, PCOS, etc.)	• Random plasma glucose; if >140, follow with fasting plasma glucose (FPG) within 1–2 days, OR • HbA1c • If FPG is 100–120, repeat
Non-alcoholic fatty liver disease	• Right upper quadrant pain • Enlarged liver	• Liver enzymes
Sleep apnea, airway obstruction	• Sleep disturbance • Snoring • Daytime somnolence	• Full polysomnogram in certified sleep lab
Orthopedic problems	• Hip, knee, or foot pain • Flat feet • Limited range of motion • Lower-leg bowing	• X-ray; if positive, refer to orthopedic specialist • Physical therapy
Depression / anxiety	• Everyone	• Child/Adolescent Mental Health Integration (MHI) packet
Polycystic ovary syndrome (PCOS)	• Hirsutism • Abnormal periods	• Free and total testosterone (be sure to order “female testosterone”) • DHEAS

*Maintain weight to decrease BMI with increasing height

▶ CLINIC & TEAM PROCESSES

✓ KEY ACTIONS FOR PROVIDERS

- Plan a team approach and process. Refer to [Adult Lifestyle and Weight Management CPM Clinic and Team Process Worksheet](#) (CPM015h) for more detail on setting up a team process.
- Assign team roles. It's especially important to assign team members to coach patients and families through the potentially time-consuming behavior change process.
- Determine a referral network.
- Set a regular time for team huddles.

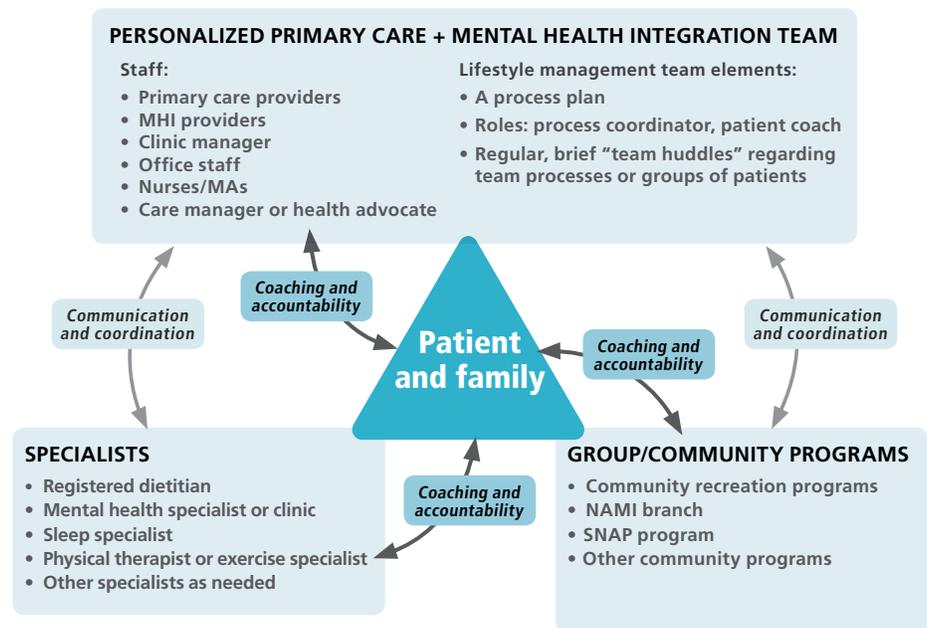


CHILDREN WITH SPECIAL NEEDS

Children with mental or physical handicaps are often at greater risk for weight management problems. Most would benefit from a detailed, individualized care plan. When possible, engage specialists educated in their care.

High-performing team-based care

Addressing the range of lifestyle behaviors that lead to overall health and well-being requires team-based care. A successful approach focuses on identifying and defining team roles, resources and processes, and fostering an environment of communication and coordination. The illustration below shows the general elements of a high-performing team.



Elements that help the team work together include:

- Team ROLES:** A clinic team with defined roles, including:
 - A process coordinator** to oversee the workflow process and communication, and alter the process as needed based on team feedback.
 - Patient coaches** to work with patients and families to evaluate readiness to change, set achievable behavior change goals, and enable follow-up and communication. Different team members may fill this role in different ways, depending on other clinical processes and patient needs.
 - Everyone on the team should support the ongoing relationship with the patient and family.** Maintaining a continuous relationship with the family has been shown to eventually bring change independent of goal setting and tracking.⁵⁰
- Team RESOURCES,** including patient education tools and referral resources.
- Team PROCESSES** based on a team goal. For detailed guidelines on setting up team processes to support lifestyle change, refer to pages 6 and 7 of the [Adult Lifestyle and Weight Management CPM](#).

CLINIC & TEAM PROCESSES, *continued*

An approach to patient visits

Once you have established a team process (see page 4) and have established a relationship with the family (see page 6), this CPM recommends an approach to patient visits that supports patients and families in behavior change, integrating team-based care with Intermountain’s new behavior change framework. (For a more detailed approach to lifestyle change planning, see pages 8–10.) An approach to patient visits is outlined below.

- 1. Assess lifestyle and health behaviors, risks, and concerns (primary care providers).** Assess lifestyle habits using the *Pediatric Lifestyle and Health Risk Questionnaire*. Perform a physical exam, symptom assessment, and health risk screen. For patients who are overweight, obese, or have had recent accelerated weight gain, assess for underlying causes or conditions and secondary complications. (See notes on page 3.)
- 2. Advise on relevant evidence-based lifestyle changes and interventions (primary care providers).** Discuss personal health risks and why they are important. Discuss and recommend behavior changes that could improve wellness and prevent or address health concerns.
- 3. Agree on a behavior-change area of focus.** Most patients will have several lifestyle issues of concern. Rather than overwhelming the patient and family with too many changes at once, **commit to one area of focus and a related goal.** (See pages 8–10 for a detailed discussion of behavior change.)
 - **Write the goal on a prescription** such as the *Rx to LiVe Well* that both provider and patient/family can sign.
 - **Engage team members** (including care manager, dietitian, mental health specialist, or other) **in assisting patients and families with behavior change.** Use the *Making a Healthy Change* worksheet to help patients and families identify specific behaviors they are ready and able to change in the identified areas, and the support they need to be successful.
 - **Recommend resources** to support the patient and family in the chosen behavior change.
- 4. Arrange for referrals, reporting mechanisms, and follow-up appointments.** Assist with resources needed to support the behavior change. Specify a follow-up plan and a method of tracking and reporting, such as *Track It!*

Behavior Change Tools

- **Pediatric Lifestyle and Health Risk Questionnaire** asks evidence-based questions related to the issues addressed in this CPM. (CPM006b)



- **Rx to LiVe Well** is a tool for prescribing health behaviors. (CPM006c)



- **Making a Healthy Change** is on the back of *Rx to LiVe Well*. It’s a tool for making a plan to carry out a chosen behavior change. (CPM006c)



- **Track It!** helps patients track recommended health behaviors. (HH014a).



- **8 to LiVe By Habit Builder** provides a brief summary of the 8 Healthy Habits, with a tracker on the back. (HH011a or HH011b)



TABLE 1: Integrating behavior change into a busy primary care visit

If you have	Then
No time	<ul style="list-style-type: none"> • Assess Pediatric Physical Activity Vital Sign (see page 3 (e)) and advise to start or increase physical activity, as needed. • Point out your concerns and arrange for a follow-up appointment. • Give the <i>8 to LiVe By Habit Tracker</i> and ask patient/family to take it home and circle one thing they’d like to try.
1 to 2 minutes	<ul style="list-style-type: none"> • Give the <i>8 to LiVe By Habit Builder</i>. • Ask patient/family what area they would most like to work on, or what would be the easiest thing to change. • Ask family if they’d like to work with another member of your team (care manager, dietitian, or mental health specialist, as needed) for support with behavior change.
3 to 5 minutes	<ul style="list-style-type: none"> • Above actions plus: Talk with patient/family in greater depth about some of the questions on the <i>Making a Healthy Change</i> worksheet. Try to identify and troubleshoot barriers to change.

▶ THE CHILD IN THE CONTEXT OF THE FAMILY

YOUR RELATIONSHIP WITH THE FAMILY

Studies show that when the healthcare team can build a **continuous, connected relationship with the family over time**, outcomes improve.^{SCO} Below are strategies to nurture this relationship:

- **Emphasize the family's role and strengths.** Point out the family's strengths — for example, the closeness of their relationships, interest in staying well, past success in overcoming challenges, etc. — as a basis to achieve their health goals.
- **Be sensitive to family issues and barriers.** Explore and address the family's assumptions and concerns about food and body weight. Be alert to barriers, such as parental depression, which can affect the family's ability to change behaviors.
- **Consider the family's culture.** Work with the family to incorporate relevant cultural traditions and beliefs into patient care and communication.
- **Demonstrate that you're on their side.** Avoid lecturing or threatening. Discuss concerns and needed behavior changes in a way that acknowledges shared responsibility to reach a shared goal: healthy behaviors for life. Solve problems together — and be the first to celebrate (even small) successes.
- **Stay in touch.** Consider ways for you and your team to maintain contact with the family in addition to in-person visits. Let them report their progress on goals by email or phone calls.

Weight management and behavior therapies work best when the patient's family is involved.^{AAP} The family is key to creating **relationships** that encourage and model healthy behaviors, build a physical **environment** that promotes healthy choices, and help the child develop a **mindset** that he or she is capable of change. (See page 8 for detail.)

Primary care providers are uniquely positioned to engage the family, as they may already have a supportive relationship with the child and family, and be seen as a reliable source of developmentally appropriate lifestyle information. Reiteration of core messages beginning early in life may foster parenting that promotes a healthy lifestyle and strengthens prevention.^{AAP}

The family as the behavior change agent

Prepare the family to engage in lifestyle change with the child by helping them see their role. Mention:

- **The importance of making changes at this time.** Children acquire eating, activity, and sleep patterns when they're young. Good habits and healthy weight are key to preventing bone and joint problems, as well as chronic problems such as obesity, high cholesterol, high blood pressure, and diabetes. More than 80% of overweight children and adolescents become overweight adults.^{WHI}
- **The importance of role modeling by parents.** This cannot be overemphasized.^{AAP} When parents model healthy behaviors for their children — and don't just single out a child with a weight problem — they can prepare the child for lifelong better health. Addressing family barriers and stresses can prepare the child for greater success.
- **The importance of healthy communication styles.** Parental communication style can affect lifestyle and weight management risk. Setting clear standards for the child, monitoring limits, giving positive encouragement (an **authoritative** parenting style) may play a protective role related to adolescent overweight.^{BERI} Being restrictive, negative, and accepting little feedback from the child (an **authoritarian** parenting style) has been associated with a higher risk of overweight among children.^{RHE}
- **Guidance for extended family and caregivers.** Grandparents, other family members, and caregivers influence children's lifestyle choices and opportunities. Encourage parents/guardians to share lifestyle and weight management information with these people and ask for their participation in behavior change goals.

Family stress and the family's engagement style can also have a significant impact on succeeding with behavior change.

Family stress

Households with a high number of stressors among parents are more likely to have overweight or obese children.^{BER} In addition, the CDC's Adverse Childhood Events Study^{ACE} found that stress over time can predispose children to a higher rate of chronic illness. Directing the family to resources for addressing stress can promote lifelong health.

- Screen for parental depression using the PHQ-2, PHQ-9, or full MHI packet.
- Assess environmental stress using the *Safe Environment for Every Kid (SEEK)* tool developed by the University of Maryland.
- As needed, refer families to the Call 2-1-1 help line for community programs that can help with family stress, parenting classes, food pantries, housing options, utility bills, youth programs, and other free or low-cost resources.

THE CHILD IN THE CONTEXT OF THE FAMILY, *continued*

Family engagement style

Not all families feel ready or able to address health issues directly. The MHI worksheet *Parental Screen and Family Rating Scale* helps identify a family’s engagement style, and can help providers approach the family effectively. Answers to the following question from the *Pediatric Lifestyle and Health Risk Questionnaire* can indicate possible family style:

- Who do you (parent) most commonly talk to or go to for help when you do not feel well or are distressed?
- The response “I usually don’t talk to anyone” is associated with a disconnected/avoidant style.
 - The response “My support is exhausted or burnt out” is associated with a confused/chaotic style.
 - The response “I talk to a friend, clergyman, church leader, spouse, or partner” is associated with a balanced/secure style.

To further evaluate family engagement style, find the Family Rating Score from the MHI packet; or, if it has not been done, administer it. The table below recommends ways to approach families based on their engagement style.

MENTAL HEALTH INTEGRATION (MHI)

Intermountain’s *Mental Health Integration* (MHI) process is designed to help primary care providers with the mental health support some families need.

TABLE 2: Family rating scale and tips on family engagement — based on MHI packet findings

Family style	Family responses	Provider approach	Language for providers
<p>Disconnected/avoidant</p> <p>The patient/family is isolated from support; they “turn to no one” and use avoidant strategies to respond to distress.</p>	<ul style="list-style-type: none"> • Find asking for help to be scary or upsetting • May dismiss or avoid treatment • “I don’t like taking medication or talking with anyone about my problems” 	<ul style="list-style-type: none"> • Acknowledge feelings • Provide straight facts about health condition • Along with education, focus on an assertive, proactive contact • Adjust follow-up to match preference for self-reliance 	<ul style="list-style-type: none"> • “It sounds like you’re most comfortable handling things on your own. It’s great that you’re here for support.” • First visit: “I have a special team in my office who works with these kinds of issues. I’d like you to think about maybe seeing them sometime.” (Say no more about this at first.) • Next visit: “Remember that team I talked to you about? They’re still here and I’d like you to meet one of them.” Invite MHI provider in for face-to-face introduction.
<p>Confused/chaotic</p> <p>Support is exhausted or burnt out because the patient/family “turns to everyone/anyone” and uses anxious or chaotic strategies to respond to distress.</p>	<ul style="list-style-type: none"> • Have trouble keeping regular appointments • May not believe interventions will work 	<ul style="list-style-type: none"> • Acknowledge feelings • Focus on consistent messaging and relational support • Avoid switching providers during treatment, if possible • Involve care manager to provide structure and coordinate with MHS, community resources, NAMI 	<ul style="list-style-type: none"> • “A lot’s going on in your life that could make it hard to be consistent. Let’s try to make a plan for how to stay in touch.” • “We have 20 minutes to work together. What are the two top things you want to work on today?” • Stop a few minutes before the appointment ends and say, “What would you like to work on next time you come in?”
<p>Balanced/secure</p> <p>Support is available. The patient/family turns to each other or to close friends and use balanced strategies to respond to distress.</p>	<ul style="list-style-type: none"> • Value and ask for healthcare team’s support with their problems 	<ul style="list-style-type: none"> • Acknowledge feelings • Reinforce value of available relational support • Involve care manager or mental health specialist as appropriate 	<ul style="list-style-type: none"> • “It sounds like you have a lot of strong relationships. These can help you with your concerns.” • “How would you like us to help you [get more physical activity]?”

Referral to an MHI team or mental health specialist

If you’ve identified a complex family, resistant behavior, high-stress or high-anxiety parent or child, or other mental health conditions, involve an MHI team or mental health specialist. Consider referring in these cases:

- Depression or anxiety in parent or child (PCP should screen for these at every visit), or other mental health conditions (may be revealed using MHI tools).
- Known or suspected eating disorder. See page 19 for screening questions.
- Failure to progress toward weight goal after 6 months of intervention, despite assurances of motivation to change.

▶ BEHAVIOR CHANGE FRAMEWORK

✓ KEY ACTIONS FOR PROVIDERS

- Primary care providers should become familiar with this model, but **involve other members of the healthcare team** (including mental health specialists, care managers, or dietitians) in building a strategy around it.
- Inform all team members of the patient/family's lifestyle goals.

INTERMOUNTAIN BEHAVIOR CHANGE FRAMEWORK

Intermountain's Behavior Change Framework combines several evidence-based models to incorporate individual, social, and environmental factors that influence behavior.

One important feature to note is that there is **no** failure. All attempts at behavior change are experiments. If one plan of action doesn't work, individuals are encouraged to keep tweaking their plan until they find a plan that fits.

See page 10 for an action planning worksheet based on this framework.



Helping patients and families make behavior changes to support a healthy lifestyle is often challenging for providers. In an effort to support patients, families, and providers in this process, Intermountain has developed an evidence-informed behavior change framework. This framework incorporates key factors that address the patient in the context of the family and the environment.

Behavior change factors

- **Action.** Behavior change should be built around a specific, doable action that represents a new behavior. An appropriate action should be determined primarily by what the patient has indicated they feel ready to focus on. Ask open-ended questions (such as the ones on the [Making a Healthy Change](#) worksheet) to encourage the patient and family to identify their own goals and strategies.

Three interdependent factors can produce action:

- **Motivation.** *What do I want to change?* Currently, this factor is the one most commonly used in patient conversations. Most people are motivated to do *something*, and it's best to start where the patient feels most ready. [Intermountain's motivational interviewing tools](#) can also help identify the changes patients are motivated to work on and feel ready to take on.
- **Ability.** *How easy is this change?* This factor has proven to be more important than previously thought. An easy task requires very little motivation. Success with easier tasks can build confidence and resilience for harder tasks in the future.
- **Prompt.** *What reminds me to do a behavior?* Prompts can be negative (the Xbox in the bedroom or the cookies on the kitchen counter) or positive (the date marked on the calendar for a family dinner or the soccer ball sitting by the door).

Behavioral factors are either positively or negatively influenced by **the surrounding culture**:

- **Environment.** The environment includes anything in the surroundings or resources that can impact behavior positively or negatively. Examples include a safe neighborhood to play in, fast food sold at schools, a television in the bedroom, or no time to prepare a meal.
- **Relationships.** Relationships with others can positively or negatively influence behaviors. Examples include having friends on a sports team, parents who model healthy or unhealthy behaviors, or an ongoing, long-term relationship with a healthcare provider focused on the target behaviors.
- **Mindset.** Mindset is one's basic beliefs about the possibility for growth and change. A person with a *growth* mindset believes they can improve by overcoming obstacles. A person with a *fixed* mindset believes that growth is hard or impossible.^{ONE} Examples include "I was able to make one small change, maybe I can take the next step" (growth), or "I'm not athletic" (fixed). The defining statement of a growth mindset is the realization that "I have **not yet** achieved my target," rather than believing "I have **failed** to achieve my target."

All attempts at behavior change result in an **outcome**.

- **Outcome.** Once an action takes place, the outcome (both real and perceived) will influence future motivation, ability, and mindset, and ultimately future actions. This is an opportunity for team members to celebrate success, normalize imperfection, and facilitate a growth mindset for future goals and actions.

BEHAVIOR CHANGE FRAMEWORK, *continued*

These behavior change factors support and enhance familiar practices

The behavior change factors and contextual elements used in Intermountain’s Behavior Change Framework are not new. Rather, the framework categorizes practices many providers are familiar with and already using. The strategies listed in the table below are taken from previous materials on weight management and lifestyle.

TABLE 3: Behavior Change Strategies

Motivation	Ability	Prompts
<ul style="list-style-type: none"> • Motivational interviewing. Help patients/families think about an outcome that’s meaningful to them and choose a change related to that outcome. (See <i>demonstration video here</i>.) • Positive reinforcement. Nothing motivates like success. Talk about the family’s strengths as you make plans. Help families plan how to measure and celebrate progress. Younger children may need more frequent (even daily) reinforcement for improved behavior. • Growth mindset. Reinforce the idea that the process of change is a series of small experiments. Move the family away from the idea of failure to a discussion of why something didn’t work and what else they could try. Help patients and families see behavior change as a learning process. 	<ul style="list-style-type: none"> • Addressing barriers. Help families identify and remove barriers to the change (resources, schedule, environment, relationships). Families can often set themselves up for success by making small changes in their daily environment. • Modeling. Encourage parents to model desired behaviors. • One easy change with follow-up. Rather than setting multiple goals, help the patient/family choose one easy change as an experiment. Arrange frequent follow-up in order to hear the outcome and adjust the plan. 	<ul style="list-style-type: none"> • Stimulus control in the environment. Encourage families to remove prompts associated with overeating and inactivity — replacing them with prompts for healthier behaviors. For example, rid cupboards and fridge of high-calorie snacks and fill them instead with healthy choices.^{HAS} Other ideas: leave healthy snacks in high-traffic areas at eye level, remove game consoles from bedrooms, and stop eating in front of the TV. • Tracking. Tracking (self-monitoring) can help families become more aware of behaviors and the prompts that influence them. Encourage children and families to record behaviors related to the goal (such as what they eat and drink or minutes of screen time) as well as prompts, such as related moods or events.

Using the behavior change factors to help set patient goals

Learning how to make a behavior change is a skill like any other. It requires starting with modest goals, learning what works for the individual, and building confidence to take on greater challenges over time. The steps below outline a process for using Intermountain’s Behavior Change Framework in conjunction with the lifestyle habits recommended in this care process model.

1. **Choose an area of focus and complete the *Rx to LiVe Well*.** Review the patient/family’s individual responses to the readiness questions in the *Pediatric Lifestyle and Health Risk Questionnaire*, “is this an area you would like to work on to improve?” Discuss the patient’s unique circumstances. Choose one focus from the *Rx to LiVe Well*, and sign the form as a contract.
2. **Engage members of your team to help the patient/family complete the *Making a Healthy Change worksheet*.** This will help them identify small, concrete steps toward the goal. The open-ended questions encourage patients to suggest their own best solutions. (Continue to page 10 for detail on this worksheet.)
3. **Normalize setbacks.** Follow up regularly. Encourage patients and families to revisit any plans that don’t seem to be working and make changes. Remind them that it often takes a few tries to find a plan they can stick with.

USE A TEAM-BASED APPROACH

Primary care providers should be familiar with the behavior change framework and process. Actually helping the patient/family set a goal and making a plan to carry it out may be better done by someone else on the team, such as a dietitian, mental health specialist, or care manager.

Primary care providers should let the patient know, however, that they will be following their progress.

BEHAVIOR CHANGE FRAMEWORK, *continued*



The *Making a Healthy Change* worksheet appears on the back of *Rx to Live Well*. It addresses personal and environmental factors that can support a chosen behavior change.

WHAT'S YOUR MINDSET?

When you think about **your ability to help patients and families with behavior change, what's your mindset?** Do you think, "There's not much I can do. They'll never have the willpower to change." Or do you think, "I haven't quite figured this out yet, but I'm going to keep trying different approaches until I get better at helping them"?

Ask yourself these questions:

- What's one small step I could try toward helping patients with behavior change?
- Who could help me? What tools or resources could help?
- What will prompt me to discuss behavior change with patients and families?

Making a Healthy Change: A simple tool to support behavior change

The patient worksheet *Making a Healthy Change* incorporates the factors of the Behavior Change Framework into a simple plan for working toward a goal. A healthy behavior change is presented as an **experiment** — patients and families can make a plan, evaluate what works, and adjust parts of their plan as they go. The questions point to the behavior change factors.

- ***What do you want to do?***

This question addresses the patient's **motivation**. The patient/family will have greater success if they start working on something the patient wants to do and can get excited about.

- ***What small steps could help you do this?***

This question addresses **ability**. Breaking a larger goal into a series of very small steps helps build a sense that "I can do what I set out to do," as well as the satisfaction of forward progress. Taking very small steps at first can prepare them to take larger steps as they increase in confidence.

- ***What could make this easier?***

What could you change about the places where you live, learn, work, or play? What tools or resources could help? Who could help you or do this with you?

These questions address **environment** and **relationships** (and also support **ability**). Arranging the environment or relationships can be good first steps toward a goal.

Environmental tasks might include replacing the box of cereal on the kitchen counter with a bowl of fruit. Relationship tasks might include asking a friend to join a sports team together, or making an appointment with a dietitian.

- ***What might make this harder?***

This question also addresses **ability**. Anticipating barriers can be a first step to removing them or planning to work around them — and can prevent frustration.

- ***When will you do this?***

How often? How will you make time for this? What will remind you to do this?

These questions help the patient and family plan **prompts**. One strategy for creating prompts is to tie the new behavior to something the patient is already doing. For example, *every time we eat a meal we'll eat one fresh fruit or vegetable. Or, after school I'll play outside for half an hour.*

- ***How will you keep track of what you do?***

This question addresses **outcome** and **mindset**. It encourages patients and families to make a clear record of their target actions over a limited period of time, and prepares them to evaluate what happened.

- ***When will you review how it's going?***

This question addresses **mindset**. It encourages patients and families to set a distinct time to evaluate their experiment. Evaluation is not to demonstrate success or failure, but rather to decide what factors they might change in order to move closer to the desired outcome. It may take several tries to get a plan that works, but this experimentation helps them understand their own best ways to change.



PHYSICAL ACTIVITY & SEDENTARY BEHAVIOR

Why it's important

Physically active youth have healthier levels of cardiorespiratory and muscular fitness, bone health, and metabolic biomarkers, independent of weight. Youth who are regularly active are less likely to develop risk factors for chronic diseases that may appear later in life — and thus have a better chance of a healthy adulthood.^{16G} In addition, physical activity has been found to improve brain development, attention, and memory, and to reduce depression.^{17A} Activity advice for lifestyle and weight management should include both of the following elements:

- **Increasing active behaviors** of all types. The Physical Activity Guidelines for Americans and the CDC recommend **at least 60 minutes a day of moderate- to vigorous-intensity physical activity**. This does not need to be from one continuous session, but rather can be accumulated from a variety of activities over the course of a day.^{16G}
- **Decreasing sedentary behaviors** in the child and family's daily life (including TV, video games, and Internet). The AAP recommends less than 2 hours a day of screen time for children 2 and over, and none at all for children under 2.^{16G} Research shows that **positively reinforcing reductions in sedentary activities has a greater effect** on increasing overall physical activity levels of obese children than positively reinforcing increases in physical activity.^{18P}

1. Assess and document Pediatric Physical Activity Vital Sign (PPAVS) at every wellness visit. Physical activity level should be considered a vital sign for health and should be assessed and prescribed at every wellness or well child/adolescent visit. See the physical activity assessment questions from the *Pediatric Lifestyle and Health Risk Questionnaire* in the table below.

On average, how many days per week does your child get at least 60 minutes of moderate to vigorous physical activity or play (heart beating faster than normal, breathing harder than normal)?	days per week: _____
On most days of the week does your child:	
• Walk or bike to school?	<input type="checkbox"/> yes <input type="checkbox"/> no
• Participate in physical education class at school?	<input type="checkbox"/> yes <input type="checkbox"/> no
• Participate in organized physical activity (sports, dance, martial arts, etc.) or spend 30 minutes or more playing outside?	<input type="checkbox"/> yes <input type="checkbox"/> no
On average, how many hours per day of recreational screen time (video games, TV, Internet, phone, etc.) does your child get?	hours per day: _____
Is physical activity an area that you want to work on with your family to improve?	<input type="checkbox"/> yes <input type="checkbox"/> no

✓ KEY ACTIONS FOR PROVIDERS

- **Emphasize the importance of physical activity** for health and development — regardless of obesity or other health status.
- **Assess physical activity and sedentary behaviors** at every well-child visit with young children, and at every opportunity with adolescents. Use the Pediatric Physical Activity Vital Sign (PPAVS).
- **Advise** children and adolescents to get **60 minutes of moderate-to-vigorous physical activity every day**.
- **Advise all patients to reduce sedentary behaviors** even if they meet current physical activity recommendations.
- **Ask patients and families if physical activity is an area they want to set a goal for now.** If they choose this area, activate your clinic team to help support the family in behavior change.
- **Arrange** for physical therapy or other support for patients with contraindications for or limitations on physical activity.

ONLINE GAMING DOESN'T COUNT AS ACTIVITY

For many children and teens, online gaming is increasingly replacing physical activity as an outlet for social interaction and competition. Additionally, the gaming industry is adopting the language of sports as “e-sports.” One study showed that nearly 31% of 7- and 8-year-olds think video gaming is a form of exercise.^{PHI} The American Academy of Pediatrics suggests parents set “screen-free” zones, including bedrooms. Those children who enjoy gaming should be encouraged to participate in physically active gaming.

Start a conversation with your young patients: “Tell me about the online games you play. How much time do you play every day? Could you trade some of that out for a game that moves your whole body?”



Live Well Move More for Kids is a 2-page fact sheet based on the information in the 8 to Live Well booklet and this CPM. It offers a progression of fun activities for increasing movement.

2. Advise on what types and how much physical activity to do.

Encourage young people to participate in physical activities that are appropriate for their age, that are enjoyable, and that offer variety. The table below gives evidence-based recommendations. See Table 5 on page 13 for additional evidence.

	Recommendation	Evidence statements
Move more	<p>Increase physical activity</p> <p>The Physical Activity Guidelines for Americans^{PAG} recommend ≥ 60 minutes physical activity daily, which should include:</p> <ul style="list-style-type: none"> • Most of this time should be moderate- or vigorous-intensity aerobic activity, and should include vigorous-intensity on 3 or more days per week • 3 or more days per week include muscle-strengthening and stretching • 3 or more days per week include bone-strengthening activity 	<p>Regular physical activity is associated with lower adiposity in youth. This association is stronger in boys than in girls. Vigorous PA was consistently associated with lower waist circumference, BMI, systolic blood pressure, and increased cardiorespiratory fitness in youth.^{HAY}</p> <p>Time spent outdoors with other children is an important source of moderate-to-vigorous physical activity after school. Interventions to increase physical activity may benefit from fostering friendship groups and limiting the time children spend alone.^{PEA}</p> <p>Physical activity interventions in a school-based setting with a home-based family component have the most evidence for effectiveness.^{WAN}</p>
Sit less — and limit screen time	<p>Reduce screen time</p> <p>Recommendations:</p> <ul style="list-style-type: none"> • Less than 2 hours per day of screen time • No TV, computer, tablet, game console, or smartphone in the child's bedroom 	<p>Excessive television viewing and video game playing is associated with increased adiposity in youth.^{AND} Having a bedroom television is associated with weight gain beyond the effect of television viewing time.^{GA} Parental monitoring behaviors related to children's media consumption may have long-term effects on children's BMI in middle childhood.^{TIB}</p> <p>Uninterrupted sitting for 3 hours has been shown to cause profound reduction in vascular function in young girls. Breaking up sitting with regular exercise can prevent this.^{MCM}</p>

3. Consider physical activity as an area of emphasis. Ask the patient/family if physical activity is something they feel ready and able to work on to improve at this point. Consider this in relation to other possible areas of focus. If this is something they choose:

- **Write a physical activity goal on a prescription**, such as *Rx to Live Well*, to be signed by the patient/family and provider.
- **Activate the clinic team to support physical activity behavior change.** See pages 8–10 for guidance on engaging your team in coaching patients through behavior change.
- **Provide resources.** Provide information about inexpensive local resources, including school programs, community recreation and sports programs, local parks and trails, and health clubs. Locating safe resources and facilities close to patients' homes is ideal.
 - Offer patient handouts, including *Live Well Move More for Kids, 8 to Live By Habit Builder and Track It!*, and the *Air Quality and Outdoor Exercise* fact sheet.
 - Intermountain's *Live Well website* lists healthy hikes around Utah for all ability levels.
 - SelectHealth's *Step Express* is an 8-week program offered in the schools for 4th graders. Parents can ask their school to request the program.

PHYSICAL ACTIVITY & SEDENTARY BEHAVIOR, *continued*

TABLE 5. Prescribe an individualized family-based approach

<p>Building a foundation</p> <p>Replacing sedentary behaviors with active behaviors (every day)</p>	<p>When children and families think of increasing activity, they often equate it with adding formal exercise. However, the biggest differences can be made by simply replacing sedentary activities with active daily habits and family activities. Encourage activities that promote fun, playfulness, exploration, experimentation, and enjoyment with family and friends.^{CSM}</p> <p>Four major areas of daily activity that can have an impact include:</p> <ul style="list-style-type: none"> • Choosing active modes of transportation • Promoting unstructured outdoor play • Doing family activities, including chores that family members of all ages can do • Structured activities such as school-based physical education or sports teams • Reducing screen time per AAP recommendations^{CSM}
<p>Aerobic activities</p> <p>(every day)</p>	<p>Aerobic activities. The overall goal of 60 minutes per day of physical activity can come from an accumulation of a variety of activities throughout the day. The Physical Activity Guidelines for Americans recommend that most of this activity be either moderate- or vigorous-intensity aerobic activity, and should include vigorous-intensity activity at least 3 days a week.^{PAG} This can be accomplished through formal aerobic exercise such as cycling or jogging, from participation in sports and games such as soccer, basketball, hockey, or tennis, or from just running around and playing hard. The key is to have the patient/family find aerobic activities they enjoy.</p> <p>Age. For younger children, the focus of sports activities should be on enjoyment rather than competition. As children get older, increased focus on skill development and strategy is appropriate, with the long-term goal of developing attitudes and skills that lead to lifetime participation.^{CSM}</p> <p>BMI. Kids with higher BMIs should start slowly and build gradually, particularly if they have joint pain or other problems that may discourage them and/or lead to injury. Examples of activities that may reduce pressure on the joints and provide early success are swimming and other water-based sports, stationary cycling, and use of elliptical trainers. When directed by a professional, weight training may also be a good option, as it can take advantage of taller stature and muscle strength and provide early success.^{CSM}</p>

✓ KEY MESSAGES FOR FAMILIES

From 8 to LiVe By:

1 Move more. Go for 60 minutes a day of getting your heart beating faster. It doesn't have to be all at once, but try to get in one stretch of 20 or 30 minutes where you really get out of breath.

2 Sit less — and limit screen time. Spend less than 2 hours a day in front of a screen. Online gaming is not a sport. Your body needs to get up and play!

And more:

- **Do what's fun.** Run around and play, jump rope, ride a bike, join a team. Try new activities — and get your friends to do them with you.

To parents:

- **Your job as a role model is important.** When you're active with your kids, they're more likely to be active throughout their lives.^{PAG}

WHAT ABOUT CHILDREN UNDER AGE 2?

Physical activity for infants and young children is necessary for healthy growth and development.^{PAG}

- **No screen time before age 2.** There is no evidence of cognitive benefit from television or movies for young children. Evidence points to greater benefit from being read to by an adult.
- **Don't overuse the stroller.** Whenever possible, toddlers should walk instead of ride in the stroller.
- **Keep young children active throughout the day.** Many childcare and preschool settings do not get adequate activity.^{CSM} Parents should ask childcare and preschool providers about the amount and type of activity offered in these programs — and encourage increased activity.

4. Arrange follow-up and referrals as needed.

- If necessary, refer to an exercise specialist or physical therapist, or provide suggestions for adapting exercise based on unique physical or health needs.
- Set a specific follow-up time with you or another member of your healthcare team.

FAMILY RESPONSIBILITIES

The family shapes a child's play and activity habits for a lifetime, and is the cornerstone of success in this area. **Lifestyle-related activity**, as opposed to calisthenics or programmed aerobic exercise, seems to be more important for sustained weight management.^{CSM} See Table 5 above for examples. The following breakdown of responsibilities can support family engagement.

Parents are responsible for:

- Creating opportunities to be active
- Making sure children spend time outside
- Putting limits on screen time
- Modeling the lifestyle and behavior they want to see in their children

Children are responsible for:

- Telling parents what activities they want to try
- Inventing play



NUTRITION AND HEALTHY EATING HABITS

✓ KEY ACTIONS FOR PROVIDERS

- **Assess key nutrition habits and risks** as part of overall health risk assessment.
- **Advise on evidence-based lifelong nutrition habits**, as described on page 15.
- **Ask patients and families if food is an area they want to set as a goal for now.**
If they choose this area, activate your clinic team to help support the family in behavior change.
- **Refer.** If the child is overweight or obese, consider referring to a registered dietitian.
- **Arrange** a plan for reporting progress and schedule follow-up appointments.

WHAT ABOUT CHILDREN UNDER AGE 2?

With children under 2 years of age there is no evidence for the safety or efficacy of intervention for weight loss or nutrition therapy. There are, however, clear recommendations for healthy eating. These include:

- Breastfeed if possible.
- Prohibit soda.
- Develop a routine pattern of feedings/meals, beginning at age 4 to 6 months. Discourage “grazing” (drinking or eating outside of planned snacks and meals).
- Wean from bottle at 12 months.
- Limit or eliminate juice and sweetened beverages. Give breast milk or formula until age 1. After age 1, whole milk (in a sippy cup) should be the main drink at scheduled meal times. Offer only water between meals.
- Offer balanced meals to babies eating solid foods. At every meal include a high-protein food and adequate fiber from vegetables, fruit, or whole grain.

Why it's important

Good nutrition in childhood plays a vital role in lifetime health. Eating patterns established early in life often carry over into adulthood. Many children and adolescents are consuming diets that are high in calories but low in nutrients, leaving them both overweight and undernourished. Early interventions to change this balance can help prevent or reverse obesity and/or chronic diet-related conditions such as diabetes.

Current research supports more positive messages of making small, incremental modifications to develop lifelong sustainable healthy eating habits. Regularly eating meals together with the family is also shown to promote healthier lifelong eating habits.^{LAR}

1. Assess nutrition habits and risks as part of an overall lifestyle and health risk assessment.

Ask the following questions from the **Food** section of the *Pediatric Lifestyle and Health Risk Questionnaire*:

On average, how many days per week does your child eat a healthy breakfast ?	days per week: _____
On average, how many servings of fruits and vegetables does your child eat each day?	total servings per day: _____ (fruits: _____/day; veggies: _____/day)
On average, how many 12-ounce servings of sweetened drinks (soda, sports drinks, chocolate milk) does your child have each day?	servings per day: _____ servings per week: _____
On average, how many servings of dairy does your child have each day?	servings per day: _____
On average, how many times per week do you eat a meal together as a family ?	times per week: _____
On average, how many snacks does your child have per day?	snacks per day: _____
On average, how many times per week does your child eat fast food ?	times per week: _____
How often does your child eat while doing other things like watching TV?	<input type="checkbox"/> rarely <input type="checkbox"/> sometimes <input type="checkbox"/> often
Does your child ever eat in secret ?	<input type="checkbox"/> yes <input type="checkbox"/> no
Is food an area that you want to work on with your family to improve?	<input type="checkbox"/> yes <input type="checkbox"/> no

- 2. Advise on the key evidence-based nutrition habits** (see Table 6)  relevant to the child's identified risks. Encourage small incremental changes that will have the most impact and that the patient is likely to be able to maintain for the long term.

Note: The general nutrition advice and healthy eating habits in this section apply to all children, regardless of weight or health status. Refer to pages 23–24 for more resources.

NUTRITION AND HEALTHY EATING HABITS, *continued*

TABLE 6. Top evidence-based nutrition recommendations^{AND,DGA}

Recommendation	Evidence statement	
WHAT you eat	Always eat breakfast — and make it healthy	Breakfast skipping may be associated with increased adiposity, particularly among older children and adolescents and for those who are normal weight (as opposed to already overweight). In one study of adolescents, 26% classified as inconsistent breakfast consumers had a significantly higher BMI than consistent breakfast consumers. ³⁷⁰
	Eat more fruits and vegetables	Intake of fruits and vegetables is inversely related to adiposity in children. This is based on review of evidence of 18 studies. Though some studies showed no relationship, those that found significant inverse relationship tended to have a larger sample size. None of the 18 studies showed that increased fruit and vegetable intake is related to increased adiposity. The preponderance of evidence is therefore consistent with a modest effect of fruit and vegetable intake on protecting against increased adiposity.
	Limit or eliminate sweetened drinks	Intake of calorically sweetened beverages is positively related to adiposity in children. Evidence suggests that it may be physiologically more difficult to compensate for energy consumed as a liquid than as a solid food, and that consumption of sugar-sweetened beverages results in increased energy intake. For 2- to 3-year-old children between the 85th and 95th BMI percentiles, as little as one extra sweetened drink a day can double the risk of having a BMI greater than the 95th percentile in the following year. ⁴⁶⁴ Sports drinks are not needed for most children; energy drinks should not be used. Sports drinks (containing carbohydrates, protein, or electrolytes) should be limited to young athletes engaged in prolonged vigorous sports activity needing to rehydrate and replenish carbohydrates and electrolytes lost during exercise. These should not be confused with energy drinks (containing stimulants such as caffeine), which pose potential health risks and should never be consumed by children or adolescents. ^{AAP}
	Drink 2 to 3 cups per day milk or milk products	Milk is the number one food source of calcium, vitamin D, and potassium. The Dietary Guidelines for America notes it is especially important to establish the habit of drinking milk in young children, as those who consume milk at an early age are more likely to do so as adults. Consumption of milk and milk products is linked to improved bone health, especially in children and adolescents. ^{DGA} Lower fat milk (2%) is an option for patients needing to reduce calories.
HOW you eat	Practice mindful eating — don't eat in front of a screen	Mindful eating means paying attention to the connections between emotions and eating choices, evaluating hunger levels before eating, slowing the pace of eating, and eating away from distractions like the TV. Mindful eating has been shown to help patients regain a sense of hunger and fullness, develop a sense of empowerment and enjoyment with regard to eating, improve self-esteem, and successfully lose weight and maintain weight loss. ^{COX} Portion control and caloric balance are natural outgrowths of mindful eating.
	Eat meals together as a family	Children and adolescents who eat dinner with family members are more likely to have a healthy diet. They are more likely to eat fruits and vegetables and less likely to eat high-fat foods, convenience foods, and sweets. They are also less likely to drink large amounts of carbonated beverages. One study found that this may be related to maternal attitude towards family eating patterns rather than just actual frequency of eating together. ^{MAM}

KEY MESSAGES FOR FAMILIES

From 8 to LiVe By:

- 3 Always eat breakfast — and make it healthy.** A healthy breakfast includes a fruit or vegetable, protein, and whole grains.
- 4 Eat more fruits and vegetables.**
 - Focus on building lifelong healthy eating habits instead of dieting.
- 5 Limit — or eliminate — sweetened drinks.**
 - Drink milk at meals and water between meals.
- 6 Eat meals together** as a family.
 - Make mealtime safe, pleasant, fun.
 - Turn off screens during meals. Separate the eating areas from the watching or gaming areas.

And more:

- **Don't use food as a bribe or a reward.** When encouraging good behavior or celebrating success, don't offer candy or sweets. Try out other incentives such as praise or fun activities.

NUTRITION & HEALTHY EATING HABITS, *continued*

FAMILY RESPONSIBILITIES

The Ellyn Satter Institute, Division of Responsibility in Feeding^{ES1} recommends the family roles outlined below. If parents do their job with feeding, children should do their job with eating.

Parents are responsible for:

- **What** food is offered. Choose and prepare the food. Expect children to try at least one bite of a new fruit or vegetable.
- **When** food is offered. Provide regular meals and snacks.
- **Where** the food is offered — at the family table.

Children are responsible for:

- **Whether** food is eaten. (They will learn to eat the foods their parents eat.)
- **How much** food is eaten. They will eat the amount they need.

In addition, parents should make mealtimes pleasant, and children should learn to behave well at mealtime.

These roles are presented to the patient in the *Traffic Light Eating Plan* handout (*handout shown on page 17*).

3. Consider food as a current area of focus. Ask the patient/family if food is something they feel ready and able to work on to improve at this point. Consider it in relation to other possible areas of focus. If this is something they choose:

- **Write a food-related goal on a prescription**, such as *Rx to Live Well*, to be signed by the patient/family and provider.
- **Activate the clinic team to support food-related behavior change.** Refer to pages 8–10 for guidance on engaging your team in coaching patients through behavior change.
- **Provide resources**, including handouts described on page 17.

4. Arrange for referrals, progress reporting, and follow-up appointments.

All patients identified as overweight or obese should be referred to a registered dietitian (RDN) for medical nutrition therapy (MNT) if possible. MNT for overweight children includes an assessment of eating and activity habits, calculation of calories needed for weight maintenance or weight loss, and an individualized nutrition plan.

The PCP and dietitian must work collaboratively to support the patient and family. Success for weight management intervention is positively correlated to the intensity (frequency) of intervention.^{AAP,AND,DGA} This CPM recommends the following front-loaded schedule for patient visits with the dietitian and PCP.

TABLE 7. Recommended follow-up schedule for overweight and obese patients

PCP	Dietitian	Other
Initial visit	Every 2–4 weeks for the first 3 months	Refer to mental health specialist if you suspect an eating disorder or other mental health concern. (See page 19)
3-month follow-up		
6-month follow-up	Once a month from 3–6 months	
1-year follow-up	Every 2 months from 6–12 months	

While this frequency is ideal, it may not be possible in all situations. Most payers cover three to five visits per year with a registered dietitian (SelectHealth covers five).

- **For more information on coding and billing dietitian visits**, see the *Lifestyle and Weight Management for Children and Adolescents Coding and Reimbursement Guide*.
- **Below is a list of facilities with dietitians trained to treat pediatric weight management** and the contact number to speak to a dietitian or schedule an appointment:

– American Fork Hospital	801-855-3461	– McKay-Dee Hospital	801-387-6677
– Bear River Valley Hospital	435-716-5669	– North Ogden Clinic	801-786-7500
– Budge Pediatric Clinic	435-716-1710	– Primary Children’s Hospital	801-662-1601
– Cassia Regional Med Ctr	208-677-6035	– Redrock Pediatrics	435-251-2740
– Heber Valley Med Ctr	435-657-4311	– Sunset Clinic	435-634-6010
– Hurricane Valley Clinic	435-635-6500	– Utah Valley Regional Med Ctr	801-357-8143
– LiVe Well Ctr St. George	435-251-3793	– Valley View Med Ctr	435-251-3793
– Logan Regional Hospital	435-716-5669		

NUTRITION & HEALTHY EATING HABITS, *continued*

Teaming up with registered dietitians

Registered dietitians (RDNs) should be actively involved throughout the entire prevention and treatment process. In addition to providing nutrition counseling, the dietitian can work with the patient to increase physical activity and promote healthier cognitive and behavioral strategies, which are *discussed on pages 8 and 9*. If no dietitian is on staff in your clinic, identify one or more dietitians you can refer to consistently. (See page 6 for more information on team-based care.)

Reinforce tools and techniques of pediatric nutrition therapy

Dietitians use a variety of tools and teaching methods for weight management in children and adolescents, and these are individualized to meet the lifestyle and needs of each patient and family. When the PCP and dietitian are familiar with each other’s tools, they can better support consistent messages to patients and families. Below are common examples of tools dietitians use for dietary change.

- **The Traffic Light Eating Plan.** The Traffic Light Eating Plan is broadly recognized and encourages healthy eating by guiding patients/families to choose foods that are nutrient-dense, high in fiber, and low in sugar. Foods are color-coded to reflect these nutritional priorities; patients and families are encouraged to eat more green foods and fewer red foods.
- **Choose MyPlate.** MyPlate illustrates the foods that are building blocks for a healthy diet: Focus on fruits, Vary your veggies, Make at least half your grains whole grains, Go lean with protein, and Get your calcium-rich foods. Visit ChooseMyPlate.gov for online tools and printable handouts, including:
 - 10 Tips to a Great Plate
 - Focus on Fruits
 - The School Day Just Got Healthier
 - Use Super Tracker Your Way
 - Got Your Dairy Today?
- **Krames StayWell handouts,** including *Reading Food Labels*, *Healthy Foods on the Go for Your Child*, *Shopping for Healthy Foods For Your Child*, *Helping Your Child Eat Healthy for Life*, *Making and Enjoying Meals with Your Child*.
- **Smart phone apps.** EatRight.org (from the Academy of Nutrition and Dietetics), LetsMove.org and MyPlate.



Maintain communication

The dietitian and PCP share responsibility for communicating with each other about the course of the intervention — sharing the nutrition assessment, weight/BMI changes, goals, progress, and recommendations after each visit. The *Pediatric Lifestyle and Health Risk Questionnaire* and *Rx to Live Well* prescription sheets are useful tools for this communication, and will be power forms in iCentra. Work with the dietitian to create a communication plan that works best for you.



SET EXPECTATIONS FOR MEDICAL NUTRITION THERAPY (MNT)

Most medical nutrition therapy will take place in individual sessions between a registered dietitian and the patient or family. Generally, patients should plan on 1 hour for the first visit with the dietitian and 30 minutes for follow-up visits.



This handout outlining what happens in MNT and a list of locations is available at iprintstore.org

To set the stage for a successful collaboration between the dietitian and the patient/family, emphasize personal accountability and the benefits of frequent follow-up. Let patient/family know that during the visits the dietitian will:

- Measure height, weight, and calculate and plot BMI.
- Complete a nutrition assessment through patient/family discussions and review of food, activity, and medical records.
- Educate the patient/family regarding nutrition basics, eating habits, food environment, body shapes and sizes, physical activity, and behaviors.
- Teach skills such as label reading, making food choices at school, recognizing and avoiding common pitfalls, and fitting activity into daily life.
- Create an individualized plan providing adequate calories and nutrients that match the patient’s food preferences and lifestyle.
- Build a supportive partnership for discussing concerns and questions, set appropriate goals, and receive guidance on behavioral strategies.
- Emphasize benefits of small, incremental changes over a lifetime.



SLEEP AND SUPPORT

✓ KEY MESSAGES FOR PATIENTS

From 8 to LiVe By:

- 7 Get enough sleep.** Getting the sleep you need will help you feel better in a lot of ways: less sickness, better mood, easier learning, and weight management.

CHECKING FOR SLEEP APNEA

Sleep disturbance and sleep-disordered breathing are common in overweight children and adolescents. This can be due to excess adipose tissue and adenotonsillar hypertrophy, which can narrow the upper airway.

Signs and symptoms

- Does your child snore or breathe heavily during sleep?
- Does your child gasp or stop breathing during sleep?
- Does your child often mouth-breathe or does your child's voice sound congested?
- Is your child restless during sleep?
- Does your child wet the bed?
- Is your child sleepy during the day?
- Does your child stay up late or get up at night to eat?
- Does your child often have morning headaches?

If sleep problems are suspected or discovered, refer as described at right.

SLEEP: Why it's important

This CPM update increases emphasis on sleep, in support of a growing body of evidence that appropriate sleep is critical for children's behavior, health, and weight management. Curtailed sleep in children and adolescents is associated with impaired learning, behavior problems, depression, and family disagreements.^{SMA} It's also associated with increased colds and flu, playground accidents, and increased cardiovascular disease risk factors, such as hypertension and elevated blood glucose levels.^{TAV} More recently, a meta-analysis of studies on the relationship between sleep and obesity found that for each hour of increase in sleep, the risk of overweight/obesity was reduced, on average, by 9% for children younger than age 10.^{AAP}

1. Assess adequacy and quality of sleep.

Ask the following questions from the **Sleep and Support** section of the questionnaire:

How many hours of sleep does your child typically get (including naps)?	hours per day: _____
Does your child often feel tired, fatigued, or sleepy during the daytime?	<input type="checkbox"/> yes <input type="checkbox"/> no
Are there any screens in your child's bedroom (phone, TV, computer, game console)?	<input type="checkbox"/> yes <input type="checkbox"/> no
Does your child snore?	<input type="checkbox"/> yes <input type="checkbox"/> no
Has your child stopped breathing while asleep?	<input type="checkbox"/> yes <input type="checkbox"/> no

2. Advise on evidence-based recommendations:

- **Do not allow electronic media in children's bedrooms.** Computer use, TV viewing, cell phones, and other media in children's bedrooms may reduce sleep duration and delay bedtimes.^{NUU} Having a bedroom television is associated with weight gain beyond the effect of TV viewing time.^{GIL}

TABLE 8. National Sleep Foundation 2015 recommendations for children

<ul style="list-style-type: none"> • Newborns (0–3 months): 14–17 hours • Infants (4–11 months): 12–15 hours • Toddlers (1–2 years): 11–14 hours • Preschool-age children (3–5 years): 10–13 hours 	<ul style="list-style-type: none"> • School-age children (6–13 years): 9–11 hours • Teenagers (14–17 years): 8–10 hours • Young adults (18–25 years): 7–9 hours
--	--

- **Set consistent bedtimes and create relaxing bedtime routines.** For all children, promote good sleep hygiene habits, such as no caffeinated beverages close to bedtime and making sure the bedroom is dark.
 - **Move more.** More physical activity improves sleep in children^{EKS} and adolescents.^{BRA}
- ### 3. Consider sleep as a current area of focus.
- Ask the patient/family if sleep is something they feel ready and able to work on to improve at this point. Consider it in relation to other possible areas of focus. If this is something they choose:
- **Write a sleep goal on a prescription,** such as *Rx to LiVe Well*, to be signed by both the patient/family and the provider.
 - **Activate your team to support sleep-related behavior change.** Refer to pages 8–10.
 - **Provide resources.** The *8 to LiVe By* booklet offers practical tips for improving sleep habits for families. The *LiVe Well Sleep Well* fact sheet also has ideas for healthy sleep.
- ### 4. Arrange referral,
- as needed. If a child seems to have sleep apnea^{ROS} and the apnea and related symptoms are significant, consider a consult with a sleep specialist or qualified otolaryngologist.

SLEEP AND SUPPORT, *continued***SUPPORT: Why it's important**

A supportive family environment can play an important role in the ability of the child or adolescent to sustain healthy behaviors. Significant associations have been found between positive family interactions at meals, healthy associations with food, and reduced risk of childhood overweight.^{BER2} Families who eat five or more meals together per week are less likely to have children who experience unhealthy eating.^{HAM}

1. Assess safety and support.

Ask the following questions from the **Sleep and Support** section of the questionnaire:

Has your child experienced bullying?	<input type="checkbox"/> yes	<input type="checkbox"/> no
Does your child have a best friend?	<input type="checkbox"/> yes	<input type="checkbox"/> no

Also consider the following question from the **Food** portion of the questionnaire:

On average, how many times per week do you eat a meal together as a family ?	times per week: _____
--	-----------------------

- **Watch for symptoms of stress and anxiety in children and adolescents.** When appearing without other markers, these can include sleep disorders, weight gain, worse school grades, behavior problems, belly ache in children, and migraine in adolescents.

2. Advise on evidence-based recommendations.

- If child is experiencing bullying at school, recommend consultation with school counselor or principal. If child does not have friends, be alert for signs of depression, anxiety, or poor body image.
- **Be positive about food.** Avoid labeling foods as “bad” or “good.” Well-meaning practices like restricting foods or focusing on body weight can promote the behaviors and poor self-image they aim to prevent. Don’t use food as a punishment or reward.
- **Be positive about body image.** Focus on promoting health rather than looks. Keep the conversation safe and supportive.
- **Eat meals together with the family.** Frequent family dinners are linked to better quality family relationships and to fewer depression symptoms among adolescents.^{MUS}

3. Consider support as a current area of focus. Ask the patient/family if support is something they feel ready and able to work on to improve at this point. Consider it in relation to other possible areas of focus. If this is something they choose:

- **Write a support-related goal on a prescription,** such as *Rx to Live Well* to be signed by both the patient/family and the provider.
- **Activate team to support behavior change.** Refer to pages 8–10 for guidance on engaging your team in choosing and coaching appropriate behavior changes.
- **Provide resources,** such as the government website stopbullying.gov.

4. Arrange follow-up and referrals as necessary

- Refer to an external mental health provider as needed to address child or adolescent stress, or family disorder.
- Parents may be able to check with child’s school counselors for resources.
- Help parents find out if they have access to an employee assistance program at their workplace, if needed for counseling support.

**✓ KEY MESSAGES
FOR PATIENTS**

From 8 to Live By:

- 8** Be positive about food and body image. Avoid labeling foods as “good” or “bad.”

**TOOLS FOR STRESS
AND ANXIETY**

For more ideas on managing family relationships and stress, see pages 6 and 7.

EATING IN SECRET?

Eating in secret can be a sign of an eating disorder. The Modified ESP (Eating Disorders Screen in Primary Care) can identify patients who require further evaluation for eating disorders.

Modified ESP questions:

1. Are you concerned with your eating patterns?
2. Do you ever eat in secret?
3. Does your weight affect the way you feel about yourself?
4. Have any members of your family suffered from an eating disorder?

Scoring:

- 0–1 “Yes” responses: eating disorder ruled out.
- ≥ 2 “Yes” responses: eating disorder suspected. Refer to the [Eating Disorders Care Process Model](#) for more information.



WEIGHT MANAGEMENT STRATEGIES

✓ KEY ACTIONS FOR PROVIDERS

- Assess weight risk status, weight-related risks and concerns, and accelerated weight gain.
- If patient is overweight or obese, assess for underlying conditions, contributing medications, and secondary complications or comorbidities.
- If patient has underlying conditions, treat concurrently.
- Advise on behaviors that may put the child at risk for obesity.
- Agree on weight-loss or weight-maintenance target.
- Refer to team (care manager, dietitian, or mental health specialist) for support with behavior change.
- Arrange for frequent follow-up.

WHAT CONSTITUTES ACCELERATED WEIGHT GAIN?

Accelerated weight gain is defined as **weight rising through two major centiles within one year**. For example, going from the 20th percentile to the 60th percentile crosses both the 25th and 50th major centile lines on the weight-for-age growth chart. Accelerated weight gain in infancy or early childhood is a risk factor for adult adiposity and obesity.^{ONG}

DEFINING OVERWEIGHT FOR CHILDREN UNDER 2

For infants and children under 2 years old, overweight is determined as **weight for length greater than the 95th percentile**, not by BMI.

Why it's important

Obesity-related conditions and illnesses, once prevalent only among adults, have begun to emerge in the pediatric population, especially in adolescents. The risks include dyslipidemia, hypertension, hyperglycemia and type 2 diabetes, non-alcoholic fatty liver disease, sleep apnea and airway obstruction, orthopedic problems, depression and anxiety, and polycystic ovary syndrome. Psychosocial effects include social stigma, school bullying, depression, and discrimination. For weight management, the position statement of the Academy of Nutrition and Dietetics recommends comprehensive, multicomponent interventions that include everyday behaviors recommended in this CPM — physical activity, diet, behavior change, and parent engagement. These behaviors can increase health and well-being even when weight management is challenging.

1. Assess the patient's weight status and risk factors. 🏠

Follow the algorithm and notes on pages 2 and 3 to:

- Determine **weight risk status**, assess for **weight-related risks** and concerns, and assess for **accelerated weight gain**. See sidebar, and notes (c) and (d) on page 3.
- If patient is overweight or obese, perform further medical evaluation to assess for possible **underlying conditions**, assess for **medications** that may contribute to weight gain, and assess for **secondary complications** and comorbidities.

In addition, assess the **family's perceptions** of weight-related issues, and previous attempts to lose weight, using the *Pediatric Lifestyle and Health Risk Questionnaire*:

Do you think your child is:		
<input type="checkbox"/> underweight	<input type="checkbox"/> about right	<input type="checkbox"/> overweight
Has your child done anything to try to change their weight before? <input type="checkbox"/> yes <input type="checkbox"/> no		
If yes, answer the questions below:		
• What methods were used? _____		
• Were they successful? <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> Why or why not?		
• Has your child taken medication or supplements for weight loss? <input type="checkbox"/> yes <input type="checkbox"/> no		
– If yes, what did your child take: _____		
– How long did your child take it? _____		
– Is your child currently taking the medication or supplement? <input type="checkbox"/> yes <input type="checkbox"/> no		
– List any weight change _____		
– List any side effects (dizziness, upset stomach, etc.) _____		
Is anyone else in your child's family currently overweight? <input type="checkbox"/> yes <input type="checkbox"/> no		
Is weight an area that you want to work on with your family to improve? <input type="checkbox"/> yes <input type="checkbox"/> no		

2. Advise on behavioral risks and evidence-based interventions.

- **Help the family identify behaviors that put the child at risk for obesity.**
- **For weight management, dietary habits may play a larger role than physical activity.** A meta-analysis of studies on prevention of weight gain suggested that physical activity may not be the key determinant of unhealthy weight gain in children.^{WEL} Altering energy balance by reducing calories (such as sweetened drinks) may be easier — and require less motivation — than burning an equivalent amount of energy with daily physical activity.

TABLE 9. Top behaviors contributing to childhood overweight and obesity^{AND}

<ul style="list-style-type: none"> • Low physical activity level (sedentary behavior) • Excessive TV/media time (especially having TV or other media in the child's bedroom) • Skipping breakfast • Low fruit and vegetable intake 	<ul style="list-style-type: none"> • Sweetened beverage intake • Not eating meals together as a family • Insufficient sleep • Parental restriction of palatable foods • Parental criticism of weight
--	---

WEIGHT MANAGEMENT STRATEGIES, *continued*

3. Agree on treatment goals

- **Agree on a weight maintenance or weight loss target.** (See table (i) on page 3). When discussing the weight target, use the CDC’s [BMI-for-age chart](#) to show patients and families how weight maintenance can reduce BMI as the patient grows taller.
- **If the family’s assessment of the child’s weight status as expressed on the questionnaire is inconsistent with BMI-for-age findings,** review the BMI chart with the parents. Try to understand cultural issues that drive the disconnect, and focus on healthy lifestyle principles, not just weight. For example, if the family prefers bigger children, you could ask, “*What’s a healthy way to be bigger?*”
- **If the child has tried to lose weight previously,** discuss why a particular approach may have worked or not. Encourage patients and families to continue to experiment with new approaches, take small steps, and reevaluate their plan.
- **If child has reversible underlying conditions** that may contribute to weight management, treat concurrently with behavioral causes.
- Consider the [Pediatric Lifestyle and Health Risk Questionnaire](#) and agree on one area of focus for behavior change (activity, food, sleep, support) at a time.

4. Activate your team to support behavior change and provide resources.

- Refer to pages 8–10 for a process for engaging the patient and family in behavior change that will support weight management.
- **Provide other education materials and resources.** Recommend [8 to Live By](#), [Track It](#), or a mobile app such as [MyFitnessPal](#) or [MyPlate](#) for the patient and family to keep track of their behaviors.
- In rare cases, consultation with a pediatric obesity specialist for consideration of medication therapy or bariatric surgery may be warranted. See pages 22–23.

5. Arrange for referrals, reporting mechanisms, and frequent follow-up.

Evidence is clear that the most important element in the success of weight management programs is the frequency of follow-up. The chart below shows a recommended schedule for PCP and dietitian follow-up. If nutrition therapy with a dietitian is not part of the intervention, the PCP should provide nutrition counseling and follow up more frequently.

TABLE 7 REPEATED. Recommended follow-up schedule

PCP	Dietitian	Other
Initial visit	Every 2–4 weeks for the first 3 months	Refer to mental health specialist if you suspect an eating disorder or other mental health concern. (See page 19)
3-month follow-up		
6-month follow-up	Once a month from 3–6 months	
1-year follow-up	Every 2 months from 6–12 months	

– Continue to page 23 for more detail on follow-up visits.

✓ KEY MESSAGES FOR PATIENTS

- **Food habits and activity habits are both key to weight management.**
- **Try to get a lot of physical activity every day.** Increasing activity, building muscle, and reducing inactive time all support the body’s ability to burn calories and improve health.
- **Focus on building lifelong healthy habits** — not on quick fixes. All activities on the [Rx to Live Well](#) can help — but just take on one at a time. Learn the process of making and sticking with a change, then take on the next thing.
- **Weight loss is not the only measure of success.** We’re also going to celebrate when you make important changes, like moving more, eating well, sitting in front of screens less, and just feeling better overall.
- There is no evidence of benefit from parents weighing children at home.

WEIGHT LOSS SUPPLEMENTS

Use of weight-loss supplements is not studied in children and **may be dangerous**. It’s important to be aware of common supplements and **caution patients and families against use**.

- **Common single ingredients** used in weight loss supplements are listed below. Those marked in **bold** are substances that have been determined to be **dangerous for use in any population**: **Bitter orange**, caffeine, chitosan, chromium nicotinate, **country mallow**, **ephedrine**, garcinia cambogia, **germander**, glucomannan, green tea, **guarana**, guggul, hoodia, ma huang, pyruvate, rhodiola, spirulina.
- Common brand-name weight-loss supplements containing different combinations of the above include: Hydroxycut, Hardcore NV, Smartburn, Lipo 6, Slimquick, Lex-L10, Lipovox, Hoodia Gordonii, and Zantrex-3.

WEIGHT MANAGEMENT PROGRAM IN DEVELOPMENT

Intermountain is developing a new weight management program for kids and families. Watch for updates in 2016. Until then it is recommended that you refer patients for individual counseling with a dietitian.

WEIGHT MANAGEMENT STRATEGIES, *continued*

PHARMACOLOGICAL THERAPY OR BARIATRIC SURGERY

Pharmacological therapy and bariatric surgery are not recommended for weight loss in pediatrics, except in rare circumstances and in consultation with an appropriate pediatric subspecialist. Consider these therapies only for the severely obese and only after behavioral interventions (nutrition, physical activity, and behavior therapy) have failed to result in improved BMI after at least 6 months. Counsel patients about the limitations and potential risks of these therapies.

Pharmacological therapy

In general, pharmacological therapy is not recommended for use in weight loss for pediatric patients. Clinical data on pharmacological treatment of obesity in adolescents is limited. The lack of long-term efficacy data combined with the risk of adverse events and need for frequent monitoring associated with weight-loss drugs outweighs the potential benefit in most cases. When used, pharmacotherapy should always be combined with appropriate lifestyle changes (diet and exercise).

TABLE 15. Medications approved for weight loss — for reference only

Primary care providers should not prescribe these medications without consultation and experience.

	Mechanism of action	FDA approval	Study results	Cautions
Orlistat (Xenical)	Reduces fat absorption by blocking gastric and pancreatic lipases	Approved for children aged ≥ 12 years	Orlistat studies have shown decreases in BMI scores up to 0.86 kg/m^2 over 1 year when dosed at 360 mg/day . ^{MAA, OZK}	Common adverse events include fatty/oily stool, oil evacuation, abdominal pain, and headache.
Metformin	Metformin is indicated only as an adjunct to diet and exercise to improve glycemic control in patients age 10 years and older with type 2 diabetes. It is NOT recommended as a primary weight control agent.			
Thyroid hormone replacement	Thyroid hormone replacement is indicated ONLY for documented hypothyroidism. It has no place in weight-loss therapy and can be harmful if used inappropriately.			

Bariatric surgery

Although bariatric surgery is being performed on an increasing number of adolescents, it is strongly discouraged and is still under investigation for this population. Reasons for this caution include the following:

- Limited data on the safety, efficacy, and complications of bariatric procedures for adolescents with growth and maturation potential. Particular concerns include post-operative late weight regain and inadequate vitamin and mineral intake.^{ING}
- Concerns of ability of adolescents to consent for a life-altering procedure.
- Significant costs, often exceeding \$20,000, before the cost of potential complications and long-term follow-up.

The American Academy of Pediatrics and others recommend the inclusion and exclusion criteria in the table below. However, these criteria should not be applied rigidly to every patient. In consultation with pediatric weight-loss specialists, these criteria should be tailored to the patient's unique situation, maturity level, and severity of comorbid conditions. In addition, adolescent bariatric surgery should only be performed at facilities capable of treating adolescents with complications of severe obesity.

Inclusion criteria ^{ING, APO}	Exclusion criteria ^{ING, APO}
<p>Severe obesity (BMI ≥ 40) with serious obesity-related comorbidities (type 2 diabetes, severe obstructive sleep apnea, nonalcoholic fatty liver disease, slipped capital femoral epiphysis, etc.) or BMI ≥ 50 with less severe comorbidities (joint pain, depression, etc.)</p> <p>AND all of the following:</p> <ul style="list-style-type: none"> • Failure of 6 months or more of organized attempts at weight management as determined by PCP • Having attained or nearly attained physiologic maturity • Demonstrated commitment to comprehensive medical and psychological evaluations both before and after surgery • Agreement to avoid pregnancy for at least 1 year postoperatively • Capable and willing to adhere to nutritional guidelines postoperatively • Provide informed assent to surgical treatment • Demonstrate decisional capacity • Have a supportive family environment 	<p>Any of the following:</p> <ul style="list-style-type: none"> • Medically correctable cause of obesity • Substance abuse problem within the preceding year • A medical, psychiatric, or cognitive condition that would significantly impair the patient's ability to adhere to postoperative dietary or medication regimens • Current lactation, pregnancy, or planned pregnancy within 2 years after surgery • Patient has not attained Tanner stage IV • Patient has not attained 95% of adult height based on estimates from bone age • Inability or unwillingness of either the patient OR the parents to fully comprehend the surgical procedure and its medical consequences, including the need for lifelong medical surveillance

WEIGHT MANAGEMENT STRATEGIES, *continued***Follow-up visits**

The following activities support continued progress toward lifestyle and weight management goals as well as your continued relationship with the patient and family.

- **Reassess BMI and medical status**, including BMI-for-age and blood pressure.
 - Follow secondary complications or comorbidities such as dyslipidemia, hyperglycemia, sleep problems or orthopedic problems.
 - Screen for depression and eating disorders (*see page 19*).
- **Monitor adherence to lifestyle change goals and track progress.**
 - Ask patient/family if they've been keeping appointments with the dietitian and other team members who are supporting them in lifestyle change.
 - Review tracking records to assess lifestyle change and talk about progress, challenges, and successes.
 - Use a BMI-for-age chart to show patients and families their weight-related progress.
 - Congratulate patients and families on improvements beyond scale weight, such as increased activity, eating more fruits, better sleep habits, etc.



- **Adjust goals and prepare patient and family for next steps.**

Reassess motivation to change and confidence in ability to change. Review weight maintenance or weight loss target.

- Update *Rx to Live Well* behavior change goals and reinforce educational messages.
- **Determine the need for further consultations or referrals.**

Based on the patient's progress toward goals, you may determine the need to consult with or refer to other programs and specialists.

 - If new comorbidities or complications arise, consider referring to appropriate pediatric specialists (e.g. pediatric endocrinologist or orthopedic specialist).
 - If symptoms of eating disorders or mental health conditions such as depression or anxiety arise, consider referring to a mental health specialist.
 - If the patient fails to progress toward weight goals after at least 6 months in a family highly committed to lifestyle change, consider referral to a pediatric obesity specialist.

**BEHAVIOR CHANGE: WHAT'S WORKING? WHAT'S NOT?**

Making lifestyle behavior changes is not a question of success and failure. Current thinking on behavior change suggests that it's most effective when approached as a series of experiments. Keep trying until you find what works for you. (*See the discussion of mindset on page 8.*)

For this reason, follow-up visits should be approached as an opportunity to review what patients have learned from their experiences. For example, a child might learn that exercising alone feels lonely, and they want to consider joining a team. Or, a family may decide that it's hard to avoid eating cookies when there are always plenty of them in the cupboard.

PCPs or other team members can recommend that patients/families:

- Tweak the goal. Ask: *could you make it easier, find someone to do it with, or make some changes to the household environment?*
- Try a different goal. Say: *Maybe you're not really ready to eat more vegetables right now. Let's try something else — like moving all the screens out of the bedrooms.*

Remember that helping the child/family have an **outcome** they feel good about (even with a small goal) will improve their **mindset** (their belief that they are able to make changes.)

A NOTE ABOUT COVERAGE

Follow-up visits count toward patient deductibles. If the patient has access to a health savings account, those funds can be used to pay for follow-up visits.

▶ TOOLS & RESOURCES

Access ALL tools

Access all the tools and links on this page from Intermountain's Lifestyle & Weight Management topic page at Intermountain.net/lifestyle and IntermountainPhysician.org/lifestyle.

To order individual items for your practice, go to iprintstore.org.



Intermountain Lifestyle TOOLS

For providers

- [*Lifestyle & Weight Management CPM for Children and Adolescents* \(CPM006\)](#)
- [*Lifestyle & Weight Management CPM for Children and Adolescents Reference List* \(CPM006R\)](#)
- [*Lifestyle & Weight Management for Children and Adolescents Coding and Reimbursement Guide* \(CPM006a\)](#)

Assessment & Behavior Modification Tools

- [*Lifestyle and Health Risk Questionnaire for Children and Adolescents* \(CPM006b\)](#)
- [*Rx to LiVe Well + Making a Healthy Change* \(CPM006c\)](#)
- [*8 to LiVe By Track It!* \(on both front and back\) \(HH014a\)](#)

The tools are also available in the combinations below. See page 5 for examples of each page:

- [*8 to LiVe By Habit Builder + Track It!* \(HH011a\)](#)
- [*8 to LiVe By Habit Builder + Making a Change* \(HH011b\)](#)
- [*8 to LiVe By Track It! + Making a Change* \(HH014b\)](#)

Patient Education Tools

- [*8 to LiVe By booklet* \(HH013\)](#)
- [*LiVe Well Move More: Ideas for Kids, Teens, and Families fact sheet* \(FSLW069\)](#)
- [*LiVe Well Traffic Light Eating Plan fact sheet* \(FSLW068\)](#)
- [*LiVe Well Sleep Well patient fact sheet* \(FSLW052\) \(for adults, also useful for children\)](#)

Materials of Interest from Adult Lifestyle and Weight Management Tool Kit

- [*Lifestyle & Chronic Disease Management Clinic Team Process Worksheet* \(CPM015h\)](#)
- [*Motivational Interviewing Demo* \(6 minutes\)](#)

Other Intermountain online resources

IntermountainHealthcare.org/nutrition



Information on registered dietitians, a nutrition blog, and a subpage on [*The Weigh to Health*](#)[®]

IntermountainHealthcare.org/wellness



Patient access to Intermountain patient education tools that supports this CPM, along with other general wellness resources

IntermountainHealthcare.org/weight



Patient access to Intermountain weight management patient education and related resources

IntermountainLiVeWell.org



Information and resources (including video) for consumers and families on nutrition, activity, and managing stress

Other online and community resources

www.LetsMove.gov



Information and activities for kids, families, schools, healthcare providers, and communities.

www.ChooseMyPlate.gov



USDA nutrition information, videos, daily food plans, a SuperTracker for nutrition and physical activity, and more

YouthReport.ProjectPlay.us



Strategies for helping every child become physically active through sports.

HealthyChildren.org



Look for the Healthy Active Living for Families program on this website from the American Academy of Pediatrics

Guidelines and references

For a list of guidelines and [references](#) used in the development of this CPM, go to intermountain.net/lifestyle or intermountainphysician.org/lifestyle.

CPM DEVELOPMENT TEAM

Chair: Tamara Sheffield, MD, MPH
Robin Aufdenkampe, RDN
Wayne Cannon, MD
Locke Ettinger, PhD
Terri Flint, PhD
Liz Joy, MD, MPH
Nikki Mihalopoulos, MD, MPH

Joy Musselman, RDN
Kathleen Nielsen, RDN
Brenda Reiss-Brennan, PhD, APRN
Jan Stucki, MPH
Mark Templeman, MD
Dot Verbrugge, MD