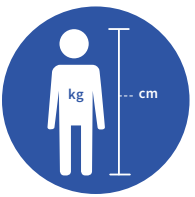


This clinical tool aims to support primary care providers in the prevention of childhood obesity within their practice. It is intended to be used with paediatric patients (2-17 years of age) and their families, irrespective of patient weight. This tool was developed to help guide conversations with patients and their families, as appropriate and over a series of visits, that focus on healthy lifestyle choices and goal-setting. Readiness to change and self-efficacy are key concepts within the conversation.



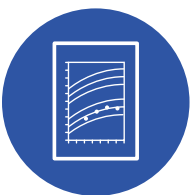
### Section A. Discuss Healthy Lifestyles and Agree on a Plan

Weight is not always an accurate reflection of lifestyle and nutrition choices. Discussions about healthy and unhealthy choices need to take place with all patients, regardless of how patients track on percentile curves. This section includes tips to help providers initiate discussions about healthy lifestyle choices. Motivational interviewing techniques are suggested to help build rapport and to manage challenging situations.



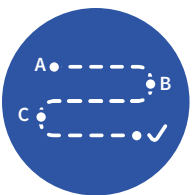
### Section B. Measure and Document Growth

Routine growth monitoring allows providers to identify concerns appropriately, while providing an avenue to prompt healthy lifestyle discussions with patients and families. This section summarizes the best practices for measuring height and weight and provides rationale for using BMI to assess growth.



### Section C. Interpret Growth

Percentile curves can be used to understand how a child's measurements compare to those of other children of similar age and gender. This section provides information on using the 2014 WHO Growth Charts for Canada, weight-based cut-off criteria, and examples of typical and potentially concerning growth patterns.



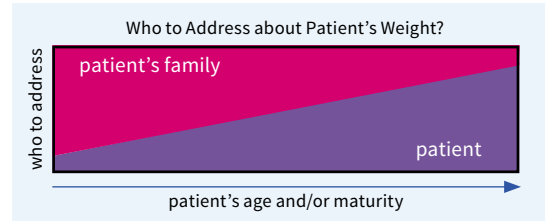
### Section D. Complete Healthy Lifestyle Record

It is important that both providers and patients/families monitor progress towards all 'agreed-on' healthy lifestyle goals. Use the Healthy Lifestyle Record to document the patient's visit, and to summarize the 'agreed-on' goals and subsequent plan of action. This Record can be filed in the patient's chart and referred to during follow-up visits to continue discussions about healthy lifestyle choices.



## Section A. Discuss Healthy Lifestyles and Agree on a Plan

Weight is not always an accurate reflection of lifestyle and nutrition choices. Discussions about healthy and unhealthy choices need to take place with all patients, regardless of how patients track on percentile curves. Addressing all aspects of healthy lifestyle and nutrition choices may not be feasible within one visit. The following section acts a guide that can be used over multiple patient visits.



### 1 Assess Awareness and Attitudes Towards Healthy Lifestyle Habits

**Say:** “Do you mind if we take a few minutes to discuss healthy eating and physical activity?”<sup>1</sup>

#### Ready to Discuss







1. Ask open-ended questions about concerns:<sup>2</sup>  
**Say:** “Do you have any concerns about your/ your child’s weight or growth?”
2. Work with patients and families to identify a lifestyle or nutrition behaviour change goal to discuss (see table below for sample topics and goals).  
**Say:** “Which one of these habits would you like to work on?”

#### Unsure/Unready to Discuss

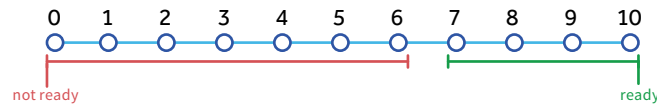
1. Acknowledge lack of readiness:  
**Say:** “It seems as if you’re not sure/not ready to discuss this right now. If you want to discuss this later, we can do so at your next visit?”
2. Continue to track patient’s growth and follow up at next visit.

### 2 Select a Goal

Assist the patient/patient’s family to choose one or more goals tailored to their needs.

Topic Area	Discussion Points	Sample Goals
 Importance of satiety/fullness	<ul style="list-style-type: none"> <li>• Importance of regular meals and snacks</li> <li>• Inclusion of protein with all meals and snacks (e.g., protein fortified cereal)</li> <li>• Liquid protein sources aren’t as effective as solids for fullness (e.g., milk vs. yogurt or cheese)</li> </ul>	___ meals with protein/day ___ snacks with protein/week
 Household meals	<ul style="list-style-type: none"> <li>• Reliance on processed foods</li> <li>• Ultra-processed food and link with obesity</li> <li>• Cooking is a life-skill to teach our children</li> <li>• Benefits of family meals (benefits extend beyond nutrition)<sup>3</sup></li> </ul>	___ meals cooked with child’s help/week ___ meals eaten together as a family/week
 Reduction of liquid calories	<ul style="list-style-type: none"> <li>• Aim for solid sources of dairy</li> <li>• Juice should not be considered a fruit equivalent</li> <li>• Avoid sweet drinks, such as soft drinks, 100% juice, sweetened milk and sports drinks<sup>4</sup></li> </ul>	___ drinks/day
 Limit eating out	<ul style="list-style-type: none"> <li>• Food Dollars (\$) – over half is spent outside of the house</li> <li>• Many (96%) fast food kids’ meals exceed recommended daily limits for calories, salt, etc.<sup>5</sup></li> <li>• Eating patterns set in childhood carry forward to adulthood</li> </ul>	___ meals out days/week ___ bagged lunches days/week
 Importance of sleep	<ul style="list-style-type: none"> <li>• Link to obesity</li> <li>• Screen time before bed (e.g., TVs in bedrooms)</li> <li>• Set a regular routine</li> <li>• Sleep apnea</li> <li>• Benefits beyond nutrition (e.g., mood, concentration)</li> </ul>	___ regular sleep time ___ screens off before bed
 Physical activity	<ul style="list-style-type: none"> <li>• Incorporating activity into daily lives (e.g., take a walk in the neighborhood)</li> <li>• Limit screen time</li> <li>• Though important to a healthy lifestyle, physical activity cannot offset poor eating habits</li> </ul>	___ walks/week as a family ___ playtime outdoors

### 3 Explore Readiness to Work on the Goal<sup>6</sup>



#### Determine Importance:

**Ask:** “How important is this change to you?”

**Importance Low (< 7):**

Indicates that patient/patient’s family sees healthy lifestyle as **unimportant**:

- i. Explore the pros and cons of trying to achieve the ‘agreed-on’ goal vs. the pros and cons of keeping actions the same
- ii. Summarize pros and cons given by patient
- iii. Ask Importance question again:
  - If < 7, consider choosing a different goal. If one cannot be found, follow up at next visit.

#### Determine Confidence:

**Ask:** “How confident are you about making this change?”

**Confidence Low (< 7):**

Patient/patient’s family is **unconfident** in their ability to change:

- i. Brainstorm strategies with patient to address potential barriers (e.g., see right) when answering the confidence question
- ii. Adjust goal to be smaller and simpler
- iii. Ask confidence question again
  - If < 7, consider choosing a different goal. If one cannot be found, follow up at next visit.

#### Probe to learn more about barriers:

- **Food Environment:** e.g., cooking skills, kitchen availability
- **School:** e.g., lunch programs, cafeteria options, bullying
- **Socioeconomic status (SES):** e.g., single parent, resource constraints for meals (see CEP’s [Poverty in Primary Care tool](#))
- **Caregivers:** e.g., lack of active play, insufficient nap time<sup>7</sup>
- **Cultural:** e.g., traditional diet, beliefs, religion
- **Medical Health:** e.g., fatigue, chronic conditions, food allergies
- **Mental Health:** e.g., depression, emotional eating, eating disorders

#### Importance and Confidence High (> 7):

Give affirmation of confidence and importance.

#### Managing Challenging Situations

Situation	Suggestions
Patient/family are resistant to the idea of discussing weight/lifestyle <sup>6</sup>	<ul style="list-style-type: none"> <li>• Do not confront or oppose. Instead, make a statement that respects their right to decide and opens the door for future discussion: <b>Say:</b> “It sounds like you’re not interested in making any changes to your family’s eating or activity right now. That decision is up to you. If you want to work on this later, I can help.”<sup>6</sup></li> </ul>
Patient/family have a strong emotional reaction when you start the discussion about BMI and healthy lifestyle	<ul style="list-style-type: none"> <li>• Name the emotion, empathize with the patient/family, and explore solutions: <b>Say:</b> “I can see you have strong feelings about this, and I know this can be upsetting. Tell me more about what you are feeling. We can work together to get through it.”<sup>8</sup></li> </ul>
Patient is overweight but patient/family do not believe it is a problem, or believe that the child will “grow out of it” <sup>6</sup>	<ul style="list-style-type: none"> <li>• Do not state facts that counter shared beliefs. Instead, make a statement that reflects what is being said and gives the patient/family an opportunity to voice concerns: <b>Say:</b> “It seems that you see no real problems with your/your child’s weight.”</li> </ul>
Patient and family are at different readiness for change	<ul style="list-style-type: none"> <li>• If patient is ready for change but family is not:                             <ul style="list-style-type: none"> <li>• Review goal list and help patient choose goals that he/she can do with minimal lifestyle changes from the rest of the family (e.g., consider packing healthier lunch options).</li> <li>• Work separately with parents to explore their ambivalence toward change.</li> </ul> </li> <li>• If family is ready for change but patient is not:                             <ul style="list-style-type: none"> <li>• Probe to learn more about possible barriers to change (see box above) with patient.</li> <li>• Emphasize adding healthy foods and fun activities with family or friends rather than taking away foods or screen time so plan does not seem punitive.</li> </ul> </li> </ul>

### 4 Agree on a Plan

- Summarize the main points of the discussion and the goal agreed upon.
- Compliment the patient/patient’s family on their willingness to work on healthy living.
- Acknowledge choice and offer encouragement.
- Discuss next steps and follow up at next visit (revisit goals and possibly discuss working on other goals).



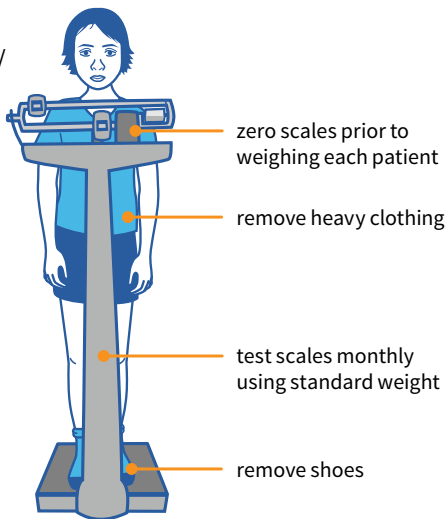
## Section B. Measure and Document Growth

- Use quality equipment that is accurate and regularly calibrated to measure patients' height and weight at both routine and acute/emergent visits.
- BMI is a strong predictor of future risk of becoming overweight and BMI is associated with negative health outcomes.<sup>9,10</sup>
- As childhood BMI is consistent with adult BMI: It can be used to track body size from age 2 through adulthood.

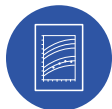
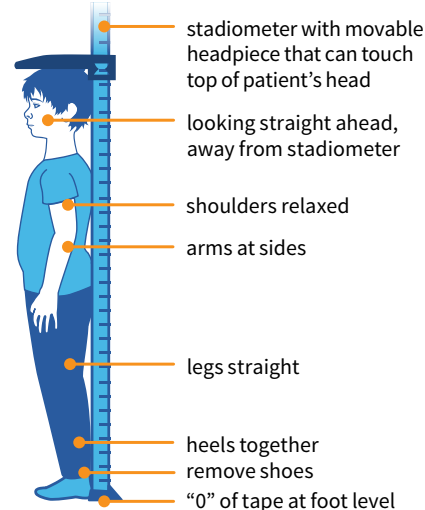
### Calculating BMI

Metric	$\frac{\text{Weight in kg}}{(\text{height in m})^2}$
Imperial	$\left[ \frac{\text{Weight in lbs}}{(\text{height in inches})^2} \right] \times 703$

### Measuring Weight



### Measuring Height



## Section C. Interpret Growth

- The 2014 WHO Growth Charts for Canada represent how typical children should grow over a specific period of time.<sup>11</sup>
- For children >2 years of age, the following growth charts are available:<sup>13,14</sup>
  - Weight-for-Age and Length-for-Age
  - Body Mass Index (BMI-for-Age)
- WHO recommends BMI-for-Age as the best measure after age 10 due to variable age of puberty – tracking weight alone is not advised.<sup>15</sup>

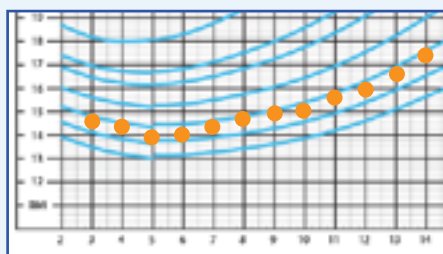
### Weight Status Cut-off Criteria<sup>12</sup>

Growth Status	Indicator	Percentiles	
		2-5 yrs	5-19 yrs
Risk of Overweight	BMI-for-age	>85th	N/A
Overweight	BMI-for-age	>97th	>85th
Obese	BMI-for-age	>99.9th	>97th
Severely Obese	BMI-for-age	N/A	>99.9th

### Interpret Growth Data

- Percentile curves can be used to understand how the child's measurements compare to other children of similar age and gender.
- Single measurements may be used to screen for nutritional risk, but have limited use in determining growth patterns and should not be used as diagnostic criteria.
- Plotting and tracking serial weight and length measurements can help to identify children with growth patterns that may warrant further investigation.

#### ✓ Normal Growth:



#### Normal Growth

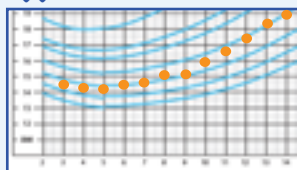
Normal growth typically:

- Follows the same growth curve over time
- Falls between the 3rd and 85th percentile
- Is proportional between weight and height

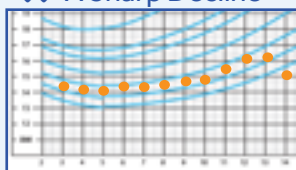
**Note:** crossing of BOTH weight and height up to 2 percentile curves may be normal for the first 2-3 years and at puberty

#### Growth Patterns Warranting Further Investigation:

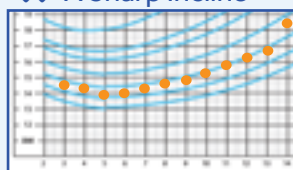
##### ✗ A Gradual Incline



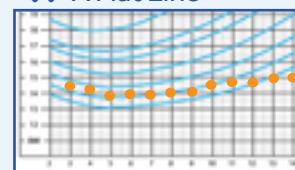
##### ✗ A Sharp Decline



##### ✗ A Sharp Incline



##### ✗ A Flat Line





## Supporting Materials\*

- [i] 2014 WHO Growth Charts for Canada. Recommended for use by the Canadian Collaborative Group (Dietitians of Canada, Canadian Pediatric Society, College of Family Physicians of Canada, Community Health Nurses of Canada, and the Canadian Paediatric Endocrine Group): <https://link.cep.health/pco1>
- [ii] WHO Training Course on Child Growth Assessment. World Health Organization. Training Course on Child Growth Assessment: <https://link.cep.health/pco2>
- [iii] WHO Growth Chart Training Program. Dietitians of Canada. A training package on using the WHO Growth Charts for Canada: <https://link.cep.health/pco3>
- [iv] Canadian Obesity Network. Clinical tools and resources for managing obesity in primary care: <https://link.cep.health/pco4>
- [v] Change Talk. An online training simulation to practice motivational interviewing techniques for childhood obesity: <https://link.cep.health/pco5>
- [vi] Healthy Jacksonville Childhood Obesity Prevention Coalition. Childhood obesity starter kit for the primary care office: <https://link.cep.health/pco6>
- [vii] Portico Network. MI resources and training: <https://link.cep.health/pco7>
- [viii] Readiness Ruler. A helpful tool to support the use of Motivational Interviewing (MI) by service providers: <https://link.cep.health/pco8>
- [ix] Good and Cheap Cookbook. A free cookbook for those on a budget: <https://link.cep.health/pco9>
- [x] EatRight Ontario. Resources and information on children's nutrition: <https://link.cep.health/pco10>
- [xi] Information on Eating Disorders for Medical Professionals: <https://link.cep.health/pco11>

\*These supporting materials are hosted by external organizations, and as such the accuracy and accessibility of their links are not guaranteed. CEP will make every effort to keep these links up to date.

## References

- [1] Healthy Jacksonville Childhood Obesity Prevention Coalition. Motivational interviewing: tips for successful physician-patient-family interactions. [cited 2015 Dec 18].
- [2] Jackson County Weight Collaborative. Childhood obesity provider toolkit. [cited 2015 Dec 18].
- [3] The Family Dinner Project. Benefits of family dinners. [cited 2015 Dec 18].
- [4] Campbell M, Benton JM, Werk LN. 5-2-1-Almost None: parents' perceptions of changing health-related behaviors in their obese child. Perm J. 2009 Summer; 13(3):4-8.
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- [6] Resnicow K, Davis R, Rollnick S. Motivational interviewing for pediatric obesity: conceptual issues and evidence review. J Am Diet Assoc. 2006;106:2024-2033.
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- [8] Lorenzetti RC, Jacques CHM, Donovan C, Cottrell S, Buck J. Managing difficult encounters: understanding physician, patient, and situational factors. Am Fam Physician. 2013;87(6):419-25.
- [9] Tirosh A, Shai I, Afek A, et al. Adolescent BMI trajectory and risk of diabetes versus coronary disease. N Engl J Med 2011; 364: 1315-25.
- [10] Raitakari OT, Juonala M, Viikari JS. Obesity in childhood and vascular changes in adulthood: insights into the Cardiovascular Risk In Young Finns Study. Int J Obes. 2005;29 (Suppl 2): S101-4.
- [11] Dietitians of Canada and Canadian Paediatric Society. Promoting optimal monitoring of child growth in Canada using the new WHO growth charts: collaborative public policy statement. 2010 [cited 2015 Dec 18].
- [12] 2014 Collaborative Group (Canadian Paediatric Society, Canadian Pediatric Endocrine Group, College of Family Physicians of Canada, Community Health Nurses of Canada and Dietitians of Canada). WHO growth charts adapted for Canada: summary of changes - March 2014. 2014 [cited 2016 Jan 15].
- [13] Perrin EM, Flower KB, Ammerman AS. Body mass index charts: useful yet underused. J Pediatr. 2004;144(4):455-60.
- [14] Flower KB, Perrin EM, Viadro CI, Ammerman AS. Using body mass index to identify overweight children: Barriers and facilitators in primary care. Ambul Pediatr. 2007;7(1):38-44.
- [15] de Onis M, Onyango A, Borghi E, Siyam A, Nishida C, Siekmann J. Development of a WHO growth reference for school - aged children and adolescents. Bulletin of the World Health Organization 2007 [cited 2015 Dec 18];85:660-7.

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