

# Championing Best Health: A Primary Care Series on Pediatric Obesity | Pearls for Practice

## Looking Beyond BMI: Assessing Pediatric Health with the EOSS-P Tool

Dr. Stasia Hadjiyannakis & Dr. Laurie Clark

### Key Messages:

- Obesity is a polygenic condition that runs strongly in families.
- 50-90% of our risk for obesity is genetically determined. This inherited genetic risk is exploited by socio-biologic factors throughout our lifetime and epigenetic changes can perpetuate this risk inter-generationally.
- Once weight is gained, it becomes biologically locked in. Weight loss and *especially sustained weight loss* is very difficult due to metabolic adaptation and strong neuroendocrine mechanisms that defend against this.
- We have traditionally used anthropometric measures to define obesity in pediatrics, specifically BMI% (greater than 95% using CDC growth curves; greater than 97% using WHO growth curves).
- BMI is a marker of body size and growth. The utility of BMI in assessing individual health risk is limited.
- Complete a comprehensive assessment using [WHO Growth Charts for Canada](#), [4Ms framework](#), [EOSS-P](#), and the [5As of Pediatric Weight Management](#)

Classification	CDC	WHO
Class I	95th to 120% of 95th%	Z- Score +2 to 3
Class II*	120 to 140% of 95th%	Z- Score +3 to 4
Class III*	Greater than 140% of 95th%	Z-Score greater than 4

### The Edmonton Obesity Staging System for Pediatrics (EOSS-P)

- Adapted from the adult version of the EOSS, this tool was designed to allow clinicians to assess the impact of obesity on children and youth in a more personalized and comprehensive way. to assess obesity-related health risks and barriers to care.
- The EOSS-P goes beyond BMI by considering complications of obesity, functional impact, developmental and mental health needs, resources, and social supports
- It allows for the development of personalized and ideally feasible management plans, focused on health outcomes and takes into account patient and family values and preferences as well as the context in which they live.
- Can be used in routine clinical visits or through information gathered from existing medical/social history
- The EOSS-P can guide risk discussions, clinical decisions, and treatment planning

EOSS-P: Edmonton Obesity Staging System – Pediatrics Staging Tool	<b>Stage 0</b> <ul style="list-style-type: none"><li>• <b>Metabolic:</b> No metabolic abnormalities</li><li>• <b>Mechanical:</b> No functional limitations</li><li>• <b>Mental:</b> No psychopathology</li><li>• <b>Milieu:</b> No parental, familial or social environment concerns</li></ul>
	<b>Stage 1</b> <ul style="list-style-type: none"><li>• <b>Metabolic:</b> Sub-clinical risk factors (Acanthosis Nigricans, pre- hypertension, IFG/IGT, mild lipid abnormalities, mild elevation in transaminases, mild to moderate fatty infiltration of liver)</li><li>• <b>Mechanical:</b> Mild OSA not requiring PAP therapy, mild MSK pain and/or dyspnea not interfering with ADL</li><li>• <b>Mental:</b> Mild psychopathology, ADHD, LD, mild body image pre-occupation, occasional emotional/binge eating, bullying, mild developmental delay</li><li>• <b>Milieu:</b> Minor problems in relationships, minor limitations in caregivers ability to support child's needs</li></ul>
	<b>Stage 2</b> <ul style="list-style-type: none"><li>• <b>Metabolic:</b> Type 2 Diabetes, Hypertension, moderate lipid abnormalities, moderate elevation of transaminases and/or severe fatty infiltration of liver, PCOS, asymptomatic gall stones</li><li>• <b>Mechanical:</b> OSA requiring PAP therapy, GERD, MSK pain limiting activity, moderate limitations in ADLs</li><li>• <b>Mental:</b> Major depression, anxiety, school absenteeism, frequent bingeing, significant bullying (school or home), significant body image disturbance, moderate developmental delay</li><li>• <b>Milieu:</b> Moderate problems in relationships, significant limitations in caregivers ability to support child's needs</li></ul>
	<b>Stage 3</b> <ul style="list-style-type: none"><li>• <b>Metabolic:</b> Uncontrolled T2DM (+/- complications), hypertension, FSGS, markedly elevated liver enzymes and/or liver dysfunction, symptomatic gall stones, marked lipid abnormalities</li><li>• <b>Mechanical:</b> OSA requiring PAP therapy and suppl. oxygen, limited mobility, shortness of breath sitting/sleeping</li><li>• <b>Mental:</b> Uncontrolled psychopathology, school refusal, daily binge eating, severe body image disturbance</li><li>• <b>Milieu:</b> Severe problems in relationships, caregivers unable to support child's needs- may include exposure to family violence, dangerous environment (home, neighbourhood, school)</li></ul>

[Click here to access the free EOSS-P Tool](#)

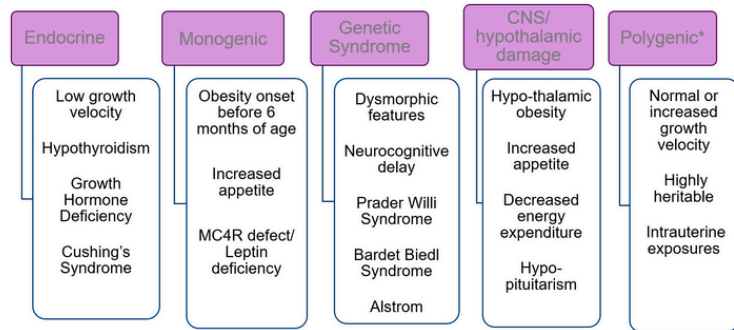
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### Etiology of Pediatric Obesity

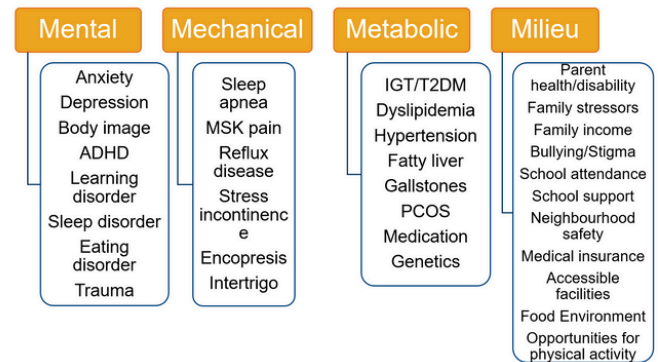
#### ASSESS



### 4Ms of Pediatric Obesity

The pediatric staging system is based on simple clinical assessments across four main domains of health; **Metabolic**, **Mechanical**, **Mental** health, and **Milieu** (social). Unique to the pediatric staging system is an assessment of family and social milieu factors - that identifies contextual factors related to caregiver and family functioning. Clinicians can take their time in completing these assessments over multiple visits.

### The 4 M's of Pediatric Obesity



### Body Image

- Strong psychological correlate of disordered eating and obesity
  - ASK:** How do you feel about your health; body; weight?
  - Do you feel like your weight interferes with anything (i.e. confidence)?
  - Does anyone make comments about your body or your weight?
  - Do you feel like you spend a lot of time and energy thinking about nutrition or your body?
- Psychoeducation on Health at Every Size (HAES)
- Body image concerns can present a significant barrier to weight management and contribute to progression of obesity over time

### Assessing Disordered Eating

- Binge Eating Disorder (BED)**
  - ASK:** Do you ever lose control of your eating?
    - Eating more rapidly than normal; uncomfortably full; eating large amounts when not hungry
    - Eating alone because of embarrassment
    - Feeling disgusted, depressed or guilty after overeating
  - Is there a pattern to binges? Frequency 2x/wk in 6 months to meet criteria for BED
- Emotional Eating:** Using food to cope with stress, boredom, anxiety, depression. Normalize
  - ASK:** Do you ever feel like your eating changes based on how you are feeling?
  - Sometimes people eat differently because they are upset or bored or down.
  - Does this ever happen to you?
- NOTE:** You may need to ask these questions more than once (at different visits) - there is a lot of SHAME around bingeing and emotional eating.