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Title: Updating the Canadian clinical practice guideline for managing pediatric obesity: a protocol
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Reviewer 1: Dr. Sean Wharton
Institution: Wharton Medical Clinic, McMaster University

General comments (author response in bold)
1. I am disappointed that it will only deal with treatment. I understand the restraint on resources. I almost feel that it would have been better to start with update to the science, genetics, biology and environment of bias and stigma in paed. I do wonder if there could be an addition of an update to the science of obesity in paediatrics, and bias and discrimination. It may be worthwhile to add these sections, and may not add that much in terms of resources. [Editor's note: Dr. Wharton makes a good point here. This would be very helpful information to include (especially given issues of stigma related to weight in children), but we understand if that will not be possible to include in the scope of the guideline.]
Thank you. While we will address some of these issues in our clinical assessment review (e.g., stigma and discrimination), given the limited resources, we are not able to address all of these issues systematically.

2. I agree that prevention is a very large topic and cannot be handled in these guidelines.
Thank you.

3. I would strongly recommend that you are clear on the definitions of lifestyle, behaviour, psychological intervention, vs diet and exercise. [Editor's note: The specific definitions with appropriate citations could be added to an appendix.]
Thank you for this note. We added an Appendix to provide a description of the definition we will employ for behavioural change interventions.

a. Even if the study lists the intervention as behaviour intervention, but it is simply a diet and exercise advice, then call it that. Their error should not be yours.
Thank you for this note. We added an Appendix to provide a description of the definitions we will employ for psychological and behavioural change interventions, which will inform classification of included studies.

b. Psychological interventions such as CBT etc. should be called out specifically and behaviour change training, such as accountability with advice on barriers to change should be defined as such. It will be very hard for clinicians to implement practices without knowing the specifics.
Thank you for this note. We added an Appendix to provide a description of the definition we will employ for psychological interventions, including CBT.

Reviewer 2: Dr. Brook Belay
Institution: Centers for Disease Control and Prevention

General comments (author response in bold)
1) Page 5/37, Line 9. Reference 15 is used to define moderate intensity lifestyle interventions as being those >25 hours in dose delivered. Please double check the reference and the potential original source of the dose estimate (i.e., the USPSTF reviews?). The correct dose estimate should be 26 hours.
This passage has now been removed from our manuscript in our effort to reduce word count based on the editor's suggestion.

2) Page 6/37, Line 46. It might be preferable to those cited to re-order this sentence slightly to state "the National Academy of Medicine (formerly the Institute of Medicine)..."
This edit has been made.

3) Page 8/37, Line 23. How will parents be selected to join/complement the committee? If appropriate it might be good to include that detail here.
Thanks, details have been added regarding parent recruitment (see Methods a. Composition of participating groups).

4) Page 9/37, Line 18. Consider adding a statement that these 5 research questions will drive 5 literature reviews. This may help some readers tie the statement in the abstract (Page 1/37, ~Line 8) with this section of the protocol.
Statement added.

5) Page 11/37, Line 2. It will be worth mentioning somewhere in the protocol how parents will be selected and, most importantly, how the process will ensure that parents of diverse backgrounds, especially racial/ethnic and original populations will be included and heard.
This is a very good point. We recently completed our survey with parents (n=30); they were recruited from obesity management clinics in 3 Canadian provinces (Alberta, Ontario and Quebec). This convenience sample included 27 (90%) females, 15 (50%) had an annual income >$100,000 CAD, and 23 (77%) were Caucasian, with the remaining participants self-reporting as Indigenous, Middle Eastern, Latin American, European, and Chinese. We have a separate manuscript (brief report) in preparation that details the development and findings from our survey with stakeholders.

6) Page 15/37, Line 9. changes in BMI-z correlates poorly with markers of comorbidities and their change over time, particularly as z-score increases.
a. Given that BMI-z scores may be replaced with other recommendations of assessing severe obesity, how do the authors propose to address these issues?
We agree that the metric used to measure severe pediatric obesity (and to monitor anthropometric changes over time) is highly relevant to our recommendations. To our knowledge, evidence indicating that other metrics (e.g., ≥120% of the 95th percentile) are superior to BMI z-score were based on research that applied the US-based CDC BMI Growth Charts. In Canada, national recommendations from the Canadian Paediatric Society and Dietitians of Canada endorse the WHO BMI Growth Charts for monitoring growth in children. We are not aware of any analyses that have examined whether alternative metrics are superior to BMI z-score using the WHO reference, which is important since the CDC and WHO

references were created using different statistical techniques. Specifically, high CDC BMIz values (i.e., >97th percentile) plateau asymptotically, limiting utility for evaluating changes over time. Alternatively, the WHO reference expresses high BMIz values in terms of SD23 (i.e., the distance between z=2 and z=3). This approach provides a truly continuous measure suitable for longitudinal measurements. This difference suggests the WHO BMIz may be superior to CDC BMI metrics, but confirmatory evidence is required. In the absence of data, we may not deviate from current recommendations, but may include a caveat to suggest using multiple metrics to evaluate changes in anthropometry (e.g., BMI z-score, absolute BMI, body weight). NOTE: Members of our steering committee (Ball, Morrison, Moore) submitted a funding application to complete secondary analyses of data (n~1300 children with obesity and severe obesity) collected as part of the CANadian Pediatric Weight management Registry (CANPWR). Cross-sectional and longitudinal analyses are planned to determine whether BMI z-score or another metric (e.g., ≥120% of the 95th percentile) is superior in its relation to adiposity and cardiometabolic health risk and to monitor changes in anthropometry over time. These analyses should be completed in early 2022, which will allow us to include these findings in the knowledge translation activities and resources that will accompany our guideline and recommendations.

b. How can effective recommendations for tracking severe obesity be made with limited measures especially since the preferred measures are not likely to be used/presented in the current literature as it stands?
Measures for tracking severe obesity are outside the scope of this work. Instead, we are conducting systematic reviews to summarize the best estimates of benefit and harm, as well as reviews of values and preferences and clinical assessment. This information will be shared with the guideline panel using the GRADE Evidence to Decision framework in order to make guideline recommendations. We will conduct a subgroup analysis on patients that are obese versus severely obese to see if the estimates of potential benefit and harm differ.

7) Page 18/37, Line 46. Regarding Knowledge Translation - clinical guidelines often suffer delayed implementation on the order of 1-2 decades before they are widely used in clinical practice. There is one NAM (under IOM moniker) report on this, as well as several recommendations from implementation scientists available on this topic. One reason for this is their integration into the daily clinical workflow. A method to potentially reduce this lag (in addition to other strategies) is to simultaneously work with clinicians, health systems and EHR developers to incorporate the guidelines into actionable, practical and efficient clinical decision supports in the EHR. This way any new CPG is effectively translated immediately into practical workflows. This reviewer did not see this consideration in the document. Thoughts from the authors are highly encouraged in this regard. [Editor's note: we encourage guideline groups to consider this as a possibility. Not being able to commit to this at this point will not affect the publication decision.]
The reviewer raises a great point. We have worked to be inclusive of all relevant stakeholder groups in Canada, having reached out to over 30 groups or organizations upon launching our update, and through having a multidisciplinary group of panel members, including parents and teens. Some of our stakeholders will have the potential to assist with implementation. For instance, in the province of Alberta, we have one provincial health care system (Alberta Health Services), which provides a single point of access within the recently-launched province-

wide EMR (Connect Care). As our activities proceed, we remain in contact with AHS representatives and other stakeholders to identify opportunities to integrate our guideline and recommendations into platforms that enable uptake. These opportunities will continue to develop over the coming year. In parallel, we will continue to work to improve the quality of the guideline methods using internationally accepted standards (i.e., GRADE, GIN, Institute of Medicine).

8) Table 3. The EOSS is listed as a potential outcome. The EOSS framework is explicit in the text of the protocol (eg, Page 4/37, Lines 14-23) but is not otherwise identified. It may be helpful to some readers to 'make the connection' in the text so that Table 3 is more readily understood.
Based on feedback form the editor, our Introduction section was reduced, which led us to remove details regarding EOSS-P at that point of our manuscript. However, we have now explicitly mentioned the Edmonton Obesity Staging System (EOSS) for Pediatrics to define health risk in childhood obesity on page 4 (See Methods c. Selection of key questions)

9) The authors did not comment on cost effectiveness. In many countries, effective management of childhood obesity is hampered by misguided attempts to assess the cost effectiveness of interventions using outcomes that have low 'signals' in childhood (eg, hard cardiometabolic outcomes). The use of EOSS as a potential outcome is intriguing in this regard because there might be ways to develop a QALY like outcome for cost effectiveness of these interventions in childhood using EOSS. Would the authors consider this type of deliberation as an ancillary whitepaper to the CPG proper? [Editor's note: as per previous comment, choosing not to do this will not affect the publication decision.]
While some guidelines consider cost, the focus of our work has been to follow international standards for conducting high quality systematic reviews of the potential benefits and harms of psychological and behaviour change, pharmacological, and surgical interventions for managing obesity. And, importantly, taking steps to systematically incorporate the values and preferences of children and families managing obesity, a first in the field to explicitly address values and preferences. Using the GRADE evidence-to-decision framework, while cost will be considered when making recommendations, due to limited resources, this item will not be based on systematic reviews of the literature.

Reviewer 3: Dr. Bill Sietz
Institution: George Washington University
General comments (author response in bold)
1. The process does not appear to include any review of strategies to engage families in treatment.
Although our 5 reviews do not include explicit research questions related to family engagement in obesity management, complementary evidence will be used to inform the recommendations included in our guideline. For instance, committee members recently published a systematic review on strategies designed to reduce attrition in pediatric obesity management (Ball et al., Pediatric Obesity, 2021). Team members have also authored reviews on obesity-related communication (McPherson et al., Obesity Reviews, 2017), weight bias and discrimination (Ramos Salas et al., Obesity Reviews, 2017), and family – clinician relations (Farnesi et al., Pediatric Obesity, 2012). We will draw on these data (among others) to generate recommendations based on the best available evidence, particularly with respect to our review on clinical assessment since optimizing family engagement (i.e., enhance initiation, reduce attrition) is essential for children with obesity to derive benefits from obesity management.

2. Nor is there any attention given to community resources that would reinforce the clinical interventions.
As a companion to the guideline and recommendations, we will work with Obesity Canada to develop tools and resources that will be drafted, reviewed, and disseminated to support stakeholder understanding and implementation. For instance, as of 2020, Obesity Canada disseminates scientific evidence to individuals affected by obesity through a community of public supporters that exceeds 35,000 members. Mechanisms to translate science to the public include a plain language, bilingual website, blog series, infographics and whiteboard videos, public workshops, webinars, social media, and a growing online support community for persons living with obesity.