

OVERVIEW

We will review the following:

1. Background on Adult Obesity Prevention and Management
2. Methods of the CTFPHC
3. Recommendations and Key Findings
4. Implementation of Recommendations
5. Other Guidelines on Adult Obesity
6. KT Tools
7. Questions and Answers

CTFPHC BACKGROUND

CTFPHC Working Group Members:

The Adult Obesity Working Group included members from the Canadian Task Force on Preventive Health Care (CTFPHC), the Public Health Agency of Canada (PHAC) and the Evidence Review Synthesis Centre (ERSC) at McMaster University.

Task Force Members:

- Paula Brauer (Chair)
- Elizabeth Shaw
- Harminder Singh
- Neil Bell
- Maria Bacchus

Public Health Agency of Canada:

- Sarah Connor Gorber
- Alejandra Jaramillo
- Amanda R.E. Shane

Evidence Review Synthesis Centre:

- Leslea Peirson
- Donna Fitzpatrick-Lewis

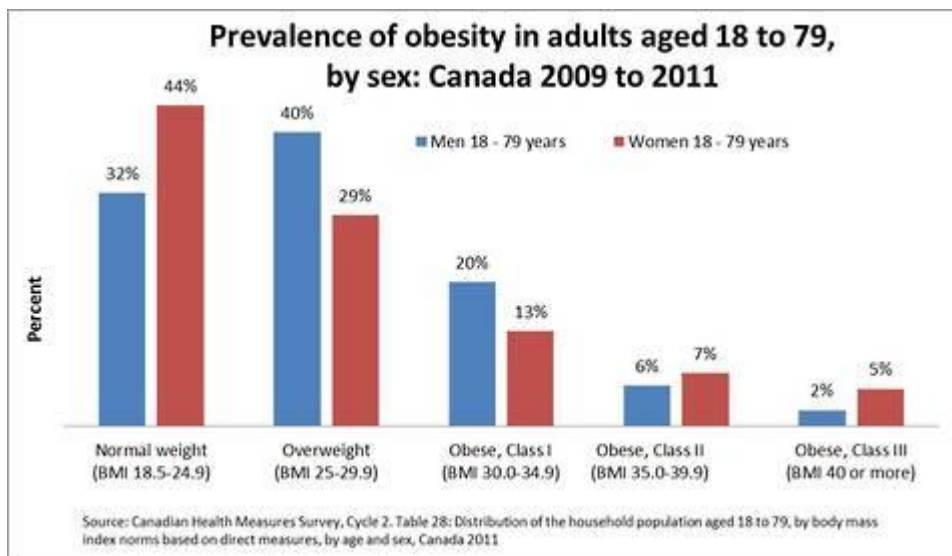
- Ali Usman

ADULT OBESITY: OVERVIEW

Background

Over two thirds of Canadian men (68%) and more than half of Canadian women (54%) are overweight or obese. About two thirds of adults who are overweight and obese were in the healthy weight range as adolescents, but gained weight in adulthood (about 0.5-1.0kg/2 years on average). The causes of obesity are complex. Some interacting factors include biological, behavioural, social, and environmental factors. Excess weight is a well-recognized risk factor for several common chronic conditions.

PREVALENCE OF OBESITY IN CANADA (2011)



This graph depicts the prevalence of obesity by BMI category for men and women aged 18 to 79 in Canada from 2009 to 2011. During the period of 2009 to 2011, 40% of men and 29% of women were considered overweight and 28% of men and 25% of women were considered obese, with 2% of men and 5% of women having a BMI greater than 40 (obese, class III).

ADULT OBESITY PREVENTION AND MANAGEMENT: GUIDELINES OBJECTIVES

Two separate guidelines were developed in primary care. These guidelines do not apply to those with a BMI over 40 who may benefit from specialized services.

1. **Obesity Prevention:** This guideline provides recommendations for the prevention of weight gain among adults in primary care.
 - The objective of this guideline is to provide evidence-based recommendations for structured interventions aimed at preventing weight gain in adults of normal weight.
2. **Obesity Management:** This guideline provides recommendations on using behavioural and/or pharmacological interventions to manage overweight and obesity in adults in primary care.
 - The objective of this guideline is to provide evidence-based recommendations for behavioural and pharmacological interventions for weight loss and other indicators to manage overweight and obesity in adults, including those at risk of Type 2 Diabetes.

Structured Behavioural Interventions

Programs focused on diet, exercise, or lifestyle changes, alone or in combination, that take place over weeks or months.

Lifestyle changes include counseling, education or support, and environmental changes in addition to changes in exercise or diet.

These structured interventions are offered in primary care settings or settings where primary care practitioners may refer patients, such as credible commercial or community programs.

METHODS OF THE TASK FORCE

The CTFPHC is an independent panel of clinicians and methodologists with expertise in prevention, primary care, literature synthesis, and critical appraisal. The mandate of the CTFPHC is to apply the latest evidence in preventive health care research to primary care practice and policy across Canada.

The Adult Obesity Working Group is composed of 5 Task Force members who work with PHACscience officers to establish the guidelines research questions and analytical framework.

The Evidence Review and Synthesis Centre (ERSC), in consultation with field experts, then undertakes a systematic review of literature based on this analytical framework, and prepares a

systematic review of the evidence with GRADE tables. The ERSC participates in working group and Task Force meetings.

CTFPHC Review Process

The CTFPHC review process is composed of an (i) internal review process and an (ii) external review process. The internal review process involves the guideline working group, the full CTFPHC, PHACscience officers and ERSC staff. The external review process involves review of the guidelines by key stakeholders from generalist and disease specific organizations, federal, provincial and territorial stakeholders. The Canadian Medical Association Journal (CMAJ), where most of the CTFPHC guidelines are published, undertakes its own independent peer review journal process.

External Reviewers

For this guideline, the Disease Specific Stakeholders were:

- Canadian Association of Gastroenterology (1 reviewer)
- Canadian Cardiovascular Harmonized National Guidelines Endeavour (1 reviewer)
- Canadian Obesity Network (1 reviewer)
- Dietitians of Canada (1 reviewer)
- Promoting Optimal Weights through Ecological Research (1 reviewer)
- SIGN Obesity GL co-chair (1 reviewer)

Generalist Organizations:

- College of Physicians of Quebec (1 reviewer)
- University of Waterloo (1 reviewer)
- University of Alberta (1 reviewer)
- University of Manitoba (1 reviewer)

Federal and P/T Stakeholders:

- Health Canada (1 reviewer reviewer)
- Public Health Agency of Canada (1 reviewer)

Anonymous reviewers:

- College of Family Physicians of Canada (6 reviewers)
- CMAJ

Systematic Review Process

The systematic review process involves the following steps:

1. Pick a topic and identify the questions
2. Decide what evidence counts
3. Develop a protocol
4. Search for evidence
5. Screen citations for relevance
6. Conduct a full-text review for inclusion
7. Assess methodological quality of studies
8. Extract relevant data
9. Analyze data across studies
10. GRADE quality of evidence
11. Write report

Review Topics and Questions

There were three review topics for the adult obesity guidelines.

1. Prevention of overweight/obesity
2. Management of overweight/obesity
3. Maintenance of weight loss

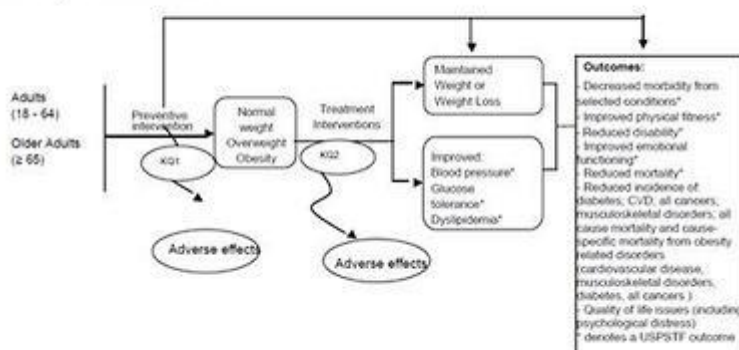
The key questions were: What are the benefits and harms of behavioural and/or pharmacological interventions (orlistat and metformin)?

Key Research Questions

The systematic review for prevention of obesity in normal weight adults included: (1) key research question with (5) sub-questions. The systematic review for management of overweight and obese adults included: (1) key research question with (5) sub-questions. The systematic review for both the prevention and management of obesity in adults included: (6) supplemental or contextual questions.

ANALYTICAL FRAMEWORK

Figure 1: Analytic framework: prevention and treatment interventions for normal weight, overweight and obese adults



The analytical framework outlines the scope of the evidence review and guideline recommendations. The purpose of the analytical framework is to show practicing physicians what the guideline includes and does not include and to visually display the relationship between the key concepts.

This guideline generally applies to normal, overweight and obese adults aged 18 to 64 years and over 65 years. As outlined in the analytical framework, prevention interventions were assessed for efficacy in maintaining weight or preventing weight gain in normal weight adults, impact on primary outcomes of interest, and associated adverse effects. Conversely, treatment interventions were assessed for efficacy in promoting weight loss and sustaining weight loss among overweight or obese adults, impact on key physiological measures and outcomes, and associated adverse treatment effects.

ELIGIBLE STUDY TYPES

The primary population of interest for the adult obesity prevention systematic review was normal weight adults aged 18 years or older. For the adult obesity management systematic review, the population of interest was adults aged 18 years or older who were obese or overweight with a BMI under 40.

The studies included were in English and in French for KQ1 on prevention (new review) and English-only for KQ2 for updated search of United States Preventive Services Task Force (USPSTF) review on treatment. The study type was restricted to randomized control trials (RCTs) as it was expected that there would be a substantial number of studies.

GRADE METHODOLOGY

The CTFPHC utilizes the GRADE system for providing clinical practice guideline recommendations based on a systematic review of the available evidence. The GRADE acronym stands for: Grading of Recommendations, Assessment, Development and Evaluation.

The GRADE system is composed of two main components:

1. The quality of the evidence: The quality of the evidence measures the degree of confidence that the available evidence correctly reflects the theoretical true effect of the intervention or service. It is graded as high, moderate, low or very low based on how likely further research is to change our confidence in the estimate of effect.
2. The strength of recommendation: The strength of the recommendation (strong/weak) is based on the quality of supporting evidence, the degree of uncertainty about the balance between desirable and undesirable effects, the degree of uncertainty or variability in values and preferences, and the degree of uncertainty about whether an intervention represents a wide use of resources.

GRADE: How is the strength of the recommendations graded?

The strength of the recommendations (strong or weak) is based on four factors:

1. The quality of the supporting evidence
2. The certainty about the balance between desirable and undesirable effects
3. The certainty or variability in the values and preferences of individuals
4. The certainty about whether the intervention represents a wise use of resources

Interpretation of Recommendations

Implications	Strong, Recommendation	Weak, Recommendations
For patients	Most individuals would want the recommended course of action; Only a small proportion would not.	The majority of individuals in this, situation would want the suggested course of action but many would not.
For	Most individuals should receive	Recognize that different choices will be appropriate for individual patients;

Implications	Strong, Recommendation	Weak, Recommendations
clinicians	the intervention.	Clinicians must help patients make management decisions consistent with values and preferences.
For policy makers	The recommendation can be adapted as, policy in most situations.	Policy making will require substantial debate and involvement of various stakeholders.

This is a standard GRADE table which outlines how weak or strong recommendations should be interpreted and implemented by different groups or stakeholders. It is important to consider the strength of the recommendations when interpreting the Task Force guidelines for implementation in clinical practice, for policy, or for patients in decision making.

RECOMMENDATIONS & KEY FINDINGS

CTFPHC Recommendations on Measuring Obesity

1. We recommend measuring height, weight, and calculating BMI at appropriate primary care visits. (Strong recommendation; very low quality evidence). The CTFPHC based this recommendation on the relatively high value on a low cost, clinically easily calculated measure with widely accepted cut points to base guidance for weight gain prevention and management. The strong recommendation implies that the CTFPHC is confident that the benefits of measuring BMI in primary care outweigh the potential harm.

CTFPHC Recommendations on Obesity Prevention

2. We recommend that practitioners not offer formal, structured interventions aimed at preventing weight gain in normal weight adults. (Weak recommendation; very low quality evidence). The CTFPHC places a relatively lower value on the unproven possibility that obesity prevention programs offered to the normal weight population may reduce the long-term risk for obesity in that group. The weak recommendation implies that uncertainty exists and that practitioners should use their judgment in determining

whether some normal weight adults may benefit from being offered or referred to weight gain prevention programs (e.g., those highly motivated or at higher risk).

Summary of Findings:

Weight gain prevention interventions in mixed weight groups have minimal effect on weight. This was measured by comparing the difference to the controls of approximately 0.8kg over 12 months. Participants were measured 15 months after the intervention and the effect was not sustained over time. The current recommendations are based on examination of the evidence supporting interventions specifically aimed at preventing weight gain. The evidence for promoting healthy behaviours in primary care (such as increasing physical activity, healthy eating, and sleep) was not examined.

CTFPHC Recommendations on Obesity Management

3. For adults who are obese ($30 \leq \text{BMI} < 40$) and are at high risk of diabetes, we recommend that practitioners offer or refer to structured behavioural interventions aimed at weight loss. (Strong recommendation; moderate quality evidence).

The CTFPHC places a high value on the decreased risk of T2D among those who participated in a structured behavioural intervention aimed at weight loss. The strong recommendation implies that the CTFPHC is confident that the benefits of offering or referring obese patients at high risk of Type 2 Diabetes to structured behavioural interventions outweigh the potential harms.

CTFPHC Recommendations on Obesity Management

4. For adults who are overweight or obese, we recommend that practitioners offer or refer to structured behavioural interventions aimed at weight loss. (Weak recommendation; moderate quality evidence). The CTFPHC places a high value on the small potential benefit of structured behavioural interventions and the low risk of harms. The weak recommendation implies that uncertainty exists with respect to the lack of evidence showing a clear net benefit, however, some overweight and obese results may still benefit from being offered or referred to weight loss interventions.

CTFPHC Recommendations on Obesity Management

5. For adults who are overweight or obese, we recommend that practitioners not routinely offer pharmacological interventions (orlistat or metformin) aimed at weight loss. (Weak recommendation; moderate quality evidence). The CTFPHC places a higher value on the potential harms of treatment with pharmacological interventions (e.g., adverse events and

gastrointestinal disturbances). A weak recommendation against implies uncertainty on the long term effectiveness of pharmacological interventions. Pharmacological therapy may be warranted in some situations.

Summary of Findings:

Weight loss interventions (behavioural and/or pharmacological) are effective in modestly reducing weight and waist circumference. For adults who are at risk of developing type 2 diabetes, weight loss interventions can reduce or delay onset. No important harms were identified for behavioural interventions, but pharmacological interventions increase the risk of harms such as gastrointestinal symptoms. Behavioural interventions are the preferred option, as the benefit to harm ratio appears more favourable than for pharmacological interventions.

Effect of Treatment Interventions on Incidence of Type 2 diabetes

The primary interventions reviewed by the working group included:

1. Primary focus on behavioural
2. Primary focus on pharmacological and behavioural

The relative risk compares the incidence of developing Type 2 Diabetes in the intervention groups divided by the incidence in the control groups. Relative risk of less than 1 indicates that risk was reduced in the intervention groups. Results were statistically significant...

- The relative risk for all studies was RR 0.6
- The relative risk for the behavioural studies compared to control groups was RR 0.6
- The relative risk for the pharmacological plus behavioural interventions compared to behavioural only control groups RR 0.7

Type 2 Diabetes Incidence	Relative Risk	No. of participants (studies)
Overall	RR 0.6	8,624 (9 studies)

Type 2 Diabetes Incidence	Relative Risk	No. of participants (studies)
Primary focus of intervention – behavioural	RR 0.6	3,198 (7 studies)
Primary, focus of intervention – pharmacological + behavioural	RR 0.7	5,426 (3 studies)

Effect of Treatment on Weight (Primary Outcome)

The effect of treatment was measured through the effect of two treatments on three critical outcomes. The two treatment groups included:

1. Behavioural interventions compared to no intervention controls
2. Pharmacological behavioural interventions compared to behavioural controls

The mean differences for the critical outcomes were:

- For weight, -3.1kg for behavioural treatment and -2.9kg additional for pharmacological treatment
- For BMI change, -1.1kg/m² for behavioural treatment and -1.3kg/m² additional for pharmacological treatment
- For waist circumference, -3.1cm for behavioural treatment and -2.3cm additional for pharmacological treatment

Outcomes	Treatment	Treatment
Critical Outcomes	Behavioural Interventions Compared to NO Intervention Controls <i>Mean Difference</i>	Pharmacological + Behavioural Interventions Compared to Behavioural Controls <i>Mean Difference</i>
Weight	-3.1 kg	-2.9 kg

Outcomes	Treatment	Treatment
BMI Change	-1.1 kg/m ²	-1.3 kg/m ²
Waist Circumference	-3.1 cm	-2.3 cm

Number Needed to Treat

Behavioural

- To achieve one participant with $\geq 5\%$ total body weight loss 9 must be treated
- To achieve one participant with $\geq 10\%$ total body weight loss 12 must be treated

All studies

- To achieve one participant with $\geq 5\%$ total body weight loss 5 must be treated

Effect of Treatment on Secondary Outcomes

The effects of the two treatment groups were also measured for the secondary outcomes. The Mean Differences for the secondary outcomes of total cholesterol, LDL cholesterol, fasting glucose, systolic blood pressure, and diastolic blood pressure with 95% Confidence Interval:

Outcomes	Treatment	Treatment
Secondary Outcomes	Behavioural Interventions Compared to NO Intervention Controls <i>Mean Difference</i>	Pharmacological + Behavioural Interventions Compared to Behavioural Controls <i>Mean Difference</i>
Total Cholesterol	-0.1 mmol/L	-0.3 mmol/L
LDL cholesterol	-0.1 mmol/L	-0.3 mmol/L

Outcomes	Treatment	Treatment
Fasting glucose	-0.1 mmol/L	-0.4 mmol/L
Systolic blood pressure	-1.8 mmHg	-1.7 mmHg
Diastolic blood pressure	-1.6 mmHg	-1.2 mmHg

Harms of Treatment

Behavioural interventions:

- Few reported adverse effects.
- The harms were usually associated with injury from physical activity. The number of reported events was quite low.

Pharmacological Interventions (metformin and orlistat):

- Adverse effects were commonly reported.
- Those with a high cardiovascular risk at the baseline were more likely to report at least 1 adverse event.
- 80% of reported adverse events were in the category of mild to moderate gastrointestinal disturbance.
- Other adverse events reported included: dizziness, headache, acute upper respiratory tract infection, hospitalization or required acute medical care.

IMPLEMENTATION OF RECOMMENDATIONS

Assessing Type 2 Diabetes Risk

- Strong recommendation for treatment when people are at high risk (1/3 chance) of developing Type 2 Diabetes in next 10 years
- Diabetes screening is recommended when adults aged over 18 where risk factors exist and every 3-5 years

- There are different tools available (e.g., CANRISK, FINRISK)
- See CTFPHC guidelines for diabetes screening: www.canadiantaskforce.ca/ctfphc-guidelines/2012-type-2-diabetes

Values and Preferences

In the review of the key contextual questions, the CTFPHC Adult Obesity Working Group found some evidence on patient preferences and values with respect to the two interventions. Some of the key findings included:

Obesity Prevention:

Practitioners should discuss the evidence showing minimal short-term benefit from weight gain prevention interventions, as some individuals of normal weight may benefit from being offered or referred to these programs including:

- Individuals with metabolic risk factors, high WC, family history of Type 2 Diabetes and of cardiovascular disease.
- Individuals who are gaining weight and motivated to make lifestyle changes.

Obesity Management:

Practitioners should discuss the evidence showing the potential benefit of structured behavioural interventions aimed at weight loss, as some overweight and obese adults may benefit from being offered or referred to these programs including:

- Individuals who are highly motivated to lose weight and make lifestyle changes

Practitioners should discuss the potential benefits and harms of pharmacological therapy, in advising those patients who may benefit from the addition of pharmacological therapy to behavioural change including:

- Individuals at risk for diabetes
- Individuals who are highly motivated to lose weight
- Individuals who prefer medications and are less concerned about potential harms

Facilitators and Barriers

Practitioners should be aware of facilitators and barriers to participation in weight gain prevention and loss interventions, including:

- Family and work schedules
- Unrealistic expectations
- Hunger
- Knowledge and/or skills
- Socio-cultural factors
- Psychological problems
- Past stigmatizing experiences
- Environmental factors

KT TOOLS

There is a Clinician Algorithm available on the CTFPHC website for assessing BMI. BMI is only one tool in an overall health assessment. The tool highlights the importance of considering diabetes risk in health assessment. There are many other resources available for preventing and managing obesity from public health and other organizations, but additional resources to support primary care practice are needed.

There is also an FAQ for the Prevention and Management of Adult Obesity for Primary Care Practitioners available that was developed, based on common questions that emerged in the development of the guidelines.

Update: CTFPHC Mobile App Now Available

- The app contains guideline and recommendation summaries, knowledge translation tools, and links to additional resources.
- Key features include the ability to bookmark sections for easy access, display content in either English or French, and change the font size of text.

CONCLUSIONS

- Measuring BMI (height/weight) is important for weight monitoring.
- People at high risk of diabetes should be offered or referred for treatment
- Treatment directed to weight loss is only modestly effective and prevention of obesity would be preferable if there was evidence of effectiveness.
- Some individuals may still benefit from being offered or referred to formal programs.
- Primary care practitioners have an important role to play in overweight and obesity prevention and management.
- Resources and strategies to better support primary care practitioners in implementing the guidelines are needed.

- Research is urgently needed about how best to prevent weight gain in normal weight adults.

More information

For more information on the details of this guideline or to access the KT tools please refer to the evidence review in the resources section of the website www.canadiantaskforce.ca.