

 <p>Winnipeg Regional Health Authority Office régional de la santé de Winnipeg Caring for Health À l'écoute de notre santé</p> <p>Clinical Practice Guideline</p>	Practice Guideline: Bariatric Care of the Adult with Obesity during Inpatient Care and Transitions in Care	
	Approved By: Lori Lamont <i>Chair WRHA Professional Advisory Committee and Bariatric Care Committee</i>	Page: 1 of 17
	Date of Approval: January 19, 2018	Revised:

1. PURPOSE:

- 1.1 To provide bariatric care of the adult with obesity during inpatient care while promoting clinical safety and dignity.
- 1.2 To facilitate transitions in care between hospital, community and long term care.

2. INDICATIONS:

- 2.1 Any healthcare practitioner who identifies a patient* requiring bariatric care may initiate this Clinical Practice Guideline (CPG). It is designed to address the many aspects of patient care in the inpatient care setting (including long term care) and during transitions in care. The patient should be identified upon admission to the healthcare setting or program. This CPG is to be initiated for those individuals weighing in excess of 155 kilograms (350 pounds) or with a Body Mass Index (BMI) that is greater than 40 kilograms/metre². There is a potential for this patient to have psychosocial issues, skin care needs, respiratory issues, mobility difficulties, functional limitations, nutritional concerns, pharmacy requirements, etc. related to their obesity as addressed in this guideline.

*** For the purpose of this guideline, patient shall mean patient/client/resident.**

3. BACKGROUND:

- 3.1 Obesity is associated with significant comorbidities including but not limited to coronary artery disease, diabetes, stroke, hypertension, congestive heart failure, obstructive sleep apnea, and other respiratory complications. These comorbidities often lead to a longer length of stay in hospital. The etiology of obesity is complex and multifactorial.
- 3.2 The care of the patient with obesity is an emerging discipline in healthcare. Existing resources on bariatric care such as guidelines, systematic reviews, and meta-analyses combined with recommended statements based on expert opinion were used to develop this CPG. Despite limited evidence about the care of obese adults, our staff care for these individuals. This guideline is a collaborative effort to provide the best evidence available to us in the care of this population. We recognize the need to continue to seek out the best evidence as it becomes available.

4. ASSESSMENT:

- 4.1 The initial assessment (see Appendix A) includes patient history, height, weight, BMI, level of mobility, activities of daily living, psychosocial review, pain assessment (<http://www.wrha.mb.ca/extranet/eipt/files/EIPT-017-001.pdf>), falls risk (<http://home.wrha.mb.ca/prog/clinicalinitiatives/falls/index.php>), current medications, equipment and assistive devices and is necessary to determine a plan of care. A plan of care should be documented within 24 hours of admission.
- 4.2 BMI is a disease-risk tool and is used to determine obesity classification.²⁷ (Appendix B)

It is not intended to be used to determine a weight loss goal or target weight.

4.3 BMI is a calculated value of the weight (kilograms)/height (metre)²

- A baseline weight and height should be measured upon admission and weight measurement should be repeated on a weekly basis in acute care and at a minimum of monthly in long term care and rehabilitation sites. Self-reported height and weight has not been found to be accurate and this can result in a poor assessment of BMI.²⁷

5. **TRANSITION/DISCHARGE PLANNING AND IMPLICATIONS:**

5.1 The patient's healthcare team will communicate to ensure continuity of care in transitions from one site/program to another. The team will consult with appropriate and available healthcare team resources as they relate to ongoing care, discharge planning and transitions in care including but not limited to:

- | | | |
|----------------------|-----------------------------|--------------------------|
| • Clinical Nutrition | • Physiotherapy | • Primary Care Providers |
| • Pharmacy | • Indigenous Health | • Respiratory Therapy |
| • Diagnostic Imaging | • Occupational Therapy | • Social Work |
| • Spiritual Health | • Speech Language Pathology | • Dental Services |
| • Home Care | • Physicians | |

5.2 The team will consult with other disciplines as indicated to address the patient's needs and to acquire equipment and services. If a patient is a candidate for rehabilitation, a referral may be made to the appropriate service provider or community resource. If a referral is made to a facility that does not have bariatric equipment, the accepting service provider will need enough time to obtain the equipment required. If a referral is made to the community, the patient and the family may require time to obtain equipment or be connected to relevant resources. Ensure that these community facilities are accessible for the patient (see section 12) and that transportation has been considered for outpatient follow-up. Clear communication with Indigenous communities and areas outside of Winnipeg is essential during discharge planning and transitions in care.

6. **PSYCHOSOCIAL ISSUES AND DIGNITY IN CARE:**

6.1 The impact of institutionalization on the patient includes lack of privacy, a loss of control and unfamiliar surroundings. It is inappropriate to refer to someone by his or her weight or size. Individuals with obesity are often victims of discrimination and stigma.⁵⁰ Healthcare providers should be aware of their own feelings/opinions about obesity and its effect on patient care. Sometimes health care providers place the onus on individual clients for the responsibility for weight loss and prevention.

6.2 The person with obesity may be reluctant to accept care, be difficult to assess, or may have many issues related to a prolonged hospitalization.¹⁵ Each patient will be addressed on a case-by-case basis using a non-judgmental patient-centered approach. The patient's readiness for health behavior change should be considered. Although a person may be classified as obese, he or she may or may not be affected by body weight. Healthcare providers must look for any adverse effect of weight on the patient in regard to psychosocial issues.¹⁵

6.3 Some indications of emotional distress include withdrawing from activities, poor self-esteem, and mental health symptoms such as depression, suicidality, crying or verbalizing concern related to weight issues.⁵³ Consider early consultation with Social Work, Spiritual Care Services and/or Indigenous Health Services. The family may also benefit from support. Healthcare providers may provide support in the form of supportive counseling, empathic listening, assessing readiness for change, education, harm reduction, and suggesting community or hospital services to support a care plan. The physical and mental health impacts should be addressed with appropriate interventions; they should be timely, accessible, practical, sustainable and affordable. Interventions should avoid recapitulating damaging

social stereotypes and they should include strategies that support both primary and secondary prevention.^{15, 50.}

6.4 Please refer to ABCD's of dignity in care <https://vimeo.com/108913889>

“Providing optimal healthcare means not only delivering the right treatment, but treating people right. Healthcare professionals need to be mindful that patients and families are usually feeling vulnerable, frightened and uncertain. How can a healthcare system ensure that the core humanities of care are well understood and embedded in everything that it does and stands for? The WRHA, in conjunction with the Manitoba Palliative Care Research Unit, produced a video called The ABCDs of Dignity in Care. The ABCDs are based on a paper published in 2007 in the British Medical Journal by Dr. Harvey Max Chochinov. Attitude, Behaviour, Compassion and Dialogue can profoundly shape any clinical encounter. Everyone working in healthcare needs to take responsibility for knowing and practicing their ABCDs of Dignity in Care.”⁴⁶

7. SKIN CARE:

Patients with obesity may be at greater risk for developing problems with their skin. Factors that contribute to this include:

- Difficulty with assessment. Assessment can be more difficult because turning and repositioning, moving tissue and examining folds provides a practical challenge.
- The fact that patients with obesity often have corresponding comorbidities such as diabetes, peripheral vascular disease, hypertension, and lymphedema that can correlate with certain types of skin breakdown including pressure injuries.⁴⁸ Patients are to be assessed for skin integrity at least every 12 hours and more frequently as indicated by their condition.¹⁵ Assess skin and skin folds.

7.1 Do not use tape if possible. If tape is applied, use latex free, hypo allergic paper tape such as MicroporeTM and always prepare the skin with skin prep or sealant.¹⁵

7.2 Patients with obesity are susceptible to rash from moisture. Consult your wound care resources as needed.¹⁵

7.3 Assistance with personal hygiene may be necessary to prevent incontinence-related dermatitis secondary to the inability to perform personal hygiene.

7.4 The patient may exhibit impaired wound healing and therefore pressure injuries; wounds and incisions may need assessment for special dressing.

<http://www.wrha.mb.ca/extranet/eipt/files/EIPT-013-004.pdf>

7.5 If a patient is transitioning to the community, skin inspection education for patient, family and caregiver must be completed. The patient may require appropriate adaptive equipment such as long handled mirrors in order to be independent.

8. RESPIRATORY ISSUES:

8.1 Patients have an increase in metabolic activity due to the excess body tissue, which increases CO₂ production and O₂ consumption.^{32,36,37,39} Excess chest wall tissue decreases pulmonary compliance, and a large abdomen pushes up on the diaphragm making diaphragmatic excursion difficult. Together these act to decrease the patient's expiratory reserve volume, which can collapse small airways causing ventilation perfusion mismatch and hypoxemia.^{34,38} In this population oxygen therapy, either non-invasive or in severe cases invasive, may be required to increase arterial saturation. If ventilation and perfusion issues progress and are not treated, the patient may become confused and combative.

For tracheal intubation, pre-oxygenating the patient using a bag mask with a peep valve set at 10cm H₂O prior to tracheal intubation can increase non-hypoxic apnea by 1 minute.³⁵ If a tracheostomy tube is required, consider a longer tube with a more acute angle because of the excessive soft tissue on the anterior neck.

Cardiac complications may also present in close relation to untreated respiratory requirements of this patient group. These are not limited to the obvious lack of oxygen supply to the tissues, but also, the alteration of filling pressures encountered by the ventricles. It is important to address respiratory support for these patients early on in their care plan.

Respiratory Therapy should be consulted upon admission of a patient requiring bariatric care.

8.2 Commonly found issues noted include:

- Obesity Related Atelectasis
- Obstructive Sleep Apnea (OSA)
- Obesity Hypoventilation Syndrome (Pickwickian Syndrome)¹⁵

9. **NUTRITION ISSUES:**

Patients requiring bariatric care commonly have co-existing disease requiring nutrition interventions including sarcopenia and frailty, increased risk of skin breakdown, pressure injuries and need for wound care, diabetes and renal disease. Following a referral the Registered Dietitian completes an individualized assessment and recommends nutritional modifications as needed.

9.1 A nutrition referral should be initiated for patients meeting bariatric criteria.

9.2 Hypocaloric, low protein feedings are associated with unfavorable outcomes. Clinical vigilance for adequate protein provision is suggested in patients who do not have severe renal or hepatic dysfunction.

9.3 “Clinical outcomes are at least equivalent in patients supported with high protein, hypocaloric feeding to those supported with high protein, eucaloric feeding.”²⁶ A trial of hypocaloric, high protein feeding is suggested in patients who do not have severe renal or hepatic dysfunction. Hypocaloric feeding may be started with 50%-70% of estimated energy needs or <14 kilocalorie/kilogram actual weight. High protein feeding may be started with 1.2grams/kilogram actual weight or 2-2.5 grams/kilogram ideal body weight.²⁶ From a practical perspective for awareness of non-nutrition professionals, for those patients with oral intake, this equates to a standard diet with additional protein sources. On admission, a high protein diet is recommended; modifications may be made to the nutrition care plan by Clinical Nutrition following a nutrition assessment.

9.4 In the hospitalized patient with obesity, if indirect calorimetry is unavailable and the Penn State University equations cannot be used, energy requirements may be based on the Mifflin-St. Jeor equation using actual body weight.

9.5 Critically ill patients with obesity experience more complications than patients with optimal BMI levels. Nutrition assessment and development of a nutrition support plan is recommended within 48 hours of Intensive Care Unit admission.

9.6 In the critically ill patients, if indirect calorimetry is unavailable, energy requirements should be based on the Penn State University 2010 predictive equation or the modified Penn State equation if the patient is over the age of 60 years.

10. **RADIOLOGY/SPECIAL PROCEDURES ISSUES:**

The handling of a patient with obesity, and ensuring the best diagnostic outcome, often comes with unique challenges.

For all diagnostic services concerns include the accommodation of:

- Size dimensions/girth
- Weight rating of the equipment
- The mobility, positional tolerance and handling of the patient and their body parts.

“Despite technical advancements in medical imaging, obese patients still present challenges in image quality...”⁵⁴. “The size of the patient and the anatomical region to be imaged (such as the abdominal and pelvic regions) have been found to be more important than weight or BMI alone in determining when protocols and techniques need to be adjusted.”⁵⁴

Diagnostic Services Considered:

- | | |
|---|---|
| • Diagnostic Radiology | • C.T. (Computerized Tomography) |
| • Nuclear Medicine | • Ultrasound |
| • M.U.G.A. (Multigated Acquisition) | • Interventional Radiology |
| • P.E.T. (Positron Emission Tomography) | • G.I. (Gastrointestinal) Lab/Endoscopy |
| • M.R.I. (Magnetic Resonance Imaging) | • Radiation Therapy |

10.1 **Procedure Considerations:**

- Radiology and Special Procedures Departments must be notified as soon as physician/prescriber orders are written so accommodations can be made for the patient specific diagnostic needs and equipment.
- Ensure that the patient’s weight and girth are measured and recorded on the requisition prior to the scheduled test.
- Examinations that pose a tangible risk to patient or staff because the operating limits of the equipment may be exceeded need to be carefully considered. The staff will seek alternative methods, consulting the radiologist or nuclear medicine physician when required.
- A minimum of 1 hour (or time frame appropriate for institution or program) should be anticipated to schedule procedures so that the appropriate room can be assigned to the patient.
- It is recommended that when staff are manually handling or manipulating patients for examination, that their case load schedule for the day be varied by type of examination, and by weight, capacity and capability of the patient.
- Consideration needs to be given to the Safe Patient Handling requirements for all manual handling of patients and/or their body parts. When limits are exceeded, alternative methods or equipment must be considered to decrease the risk of injury.
- Consider the length of time required for the imaging with regards to the patient’s tolerance for lying flat in supine (respiratory risk).

10.2 **Equipment**

- The manufacturer’s technical specifications for equipment (e.g. weight capacity and girth restrictions for radiology equipment) need to be considered and noted.
- Every attempt will be made to perform the requested examination including modification of the examination protocol and substitution of the requested examination modality. A radiologist or nuclear medicine physician must be consulted if the patient’s weight or dimensions exceed the capacity of the site’s equipment. If another site possesses equipment with a higher capacity, the patient should be referred for examination to that site when possible.
- For each department:

- List manufacturer's weight restriction for specific equipment
- Consider the size of the diagnostic bore when applicable
- Have readily available a list indicating alternate locations, phone numbers, and maximum weight and girth (if applicable) of facilities or equipment which might be able to accommodate.
- Transporting the patient to diagnostic areas may require special size and weight rated equipment and/or additional staff to ensure safe transport.

10.3 Space

- Consideration needs to be given to the size of the examination room and the mobility and equipment needs of the patient. See 12.3 for more information.
- Adequate space around the exam table is also required for staff to move freely and easily.

10.4 Special Considerations

Most of the diagnostic tools are reliant upon the machines to move and scan the patients. However, the exception is ultrasound, which is most reliant upon manual technique, manipulation and force. Because of the high-risk postures required, and the application of manual forces, special consideration needs to be given to the staff who provide this service.

- Ultrasound (May be difficult for BMI over 40)
 - Alternative diagnostic methods may be considered for individuals with a BMI >40, because:
 - The image quality is often poor and inconclusive, and often repeat images are required
 - The musculoskeletal impact on staff is significant.⁴²
 - Grip force and/or downward force on transducer may exceed the recommended safe limits for staff and therefore contribute to staff injuries.^{42,44}
 - This risk of injury is increased when combined with the awkward postures required.⁴¹
 - Extra care must be taken with regards to body mechanics; positioning of the patient and their body parts; mobility, weight and handiness of the probe: types of chairs and limb support for staff.⁴³ It is critical to be conscious of body positioning at the time of set-up, with the goal of getting as close to the patient as possible, and awareness of shifting throughout the procedure, especially when applying additional force and/or excessive reaching.⁴³

11. FUNCTIONAL CONSIDERATIONS:

- 11.1 All areas of self-care, productivity, and leisure may be impacted as a result of the patient's medical status, co- morbidities and/or complications of weight (e.g. decreased range of motion, fatigue, etc.).^{4,5,6,16,47}
- 11.2 Continually re-assess and document the patient's ability to participate in functional activities while in hospital and in the community as functional status may be variable.
- 11.3 Assess and manage musculoskeletal issues (e.g. posture, pain, injury, range of motion, endurance), assess ability to participate in exercise, and address functional problems following significant weight changes (e.g. decreased balance, loss of muscle mass, excess skin creating movement problems).⁴
- 11.4 It is important to involve the person as much as possible in goal setting to promote self-management and engagement in recommendations offered.^{5,6}

- 11.5 Promote independence in functional activities such as bed mobility, toileting, grooming, dressing, meal preparation, functional mobility and/or wheelchair mobility etc. and avoid further loss of function by providing equipment, tools, and/or education to enable participation. Adaptive equipment recommendations must meet or exceed capacity for patient's weight/size, and be appropriate to his/her living environment.^{5,6}
- 11.6 Ensure adaptive equipment meets both the weight capacity and size of the patient's needs and can be successfully used in their environment.^{1,16}
- 11.7 As bariatric equipment is often a challenge to access for assessment and discharge, consider both the patient's needs and their environment when identifying appropriate equipment. This includes bathroom equipment, seating products, and equipment for pressure management.³
- 11.8 Manage and educate on associated conditions (e.g. osteoarthritis, diabetic neuropathy), provide education on maximizing limited energy for activities of daily living, address fear regarding movement and being active, and provide education on appropriate footwear or the need for orthotics.¹
- 11.9 An assessment of a patient's home/living environment may be indicated to ensure that he/she is able to function in their own environment, to determine most appropriate equipment and to promote a safe and successful transition to the community.^{1,3,16}
- 11.10 Consider potential challenges to transportation to facilitate discharge and/or community engagement. Considerations include the width and weight of a mobility device such as a walker or wheelchair and the amount of assistance needed. If a patient's weight exceeds the weight capacity of the access ramp, they may not be eligible for public transportation including Handi-Transit.^{1,4,16}
- 11.11 Instrumental activities of daily living, productivity and leisure participation may not be priorities as an inpatient, but become more relevant for the patient in the community and should be addressed according to patient goals.^{5,6}
- 11.12 Additional information on how to address functional limitations can be accessed through:
- "Helping Adults with Obesity (BMI> 30 kg/m²) who have Functional Concerns: Tips on Referring to Occupational Therapy"
<http://www.albertahealthservices.ca/assets/info/hp/cdm/if-hp-ed-cdm-obesity-ot-tip-sheet.pdf>.¹
 - "Helping Adults with Obesity (BMI> 30 kg/m²) Who Have Functional Concerns: Tips on Identifying When Physiotherapy Can Help"
<http://www.albertahealthservices.ca/assets/info/hp/cdm/if-hp-ed-cdm-obesity-pt-tip-sheet.pdf>.²

12. SPACE AND EQUIPMENT CONSIDERATIONS:

- 12.1 The following equipment should be considered in the care of the patient with obesity:
- Specialty beds/examination tables
 - Specialty mattresses
 - Bariatric walkers (28-40+ inches)
 - Bariatric room chairs
 - Bariatric beds that lower closer to floor
 - Patient lifts/slings (including limb slings)
 - Transport stretchers

- Gowns/Pants/Pajamas large enough to cover patient when out of bed
- Bariatric bedside commodes
- Scales to weigh patient (specialty beds/standing scales/other)
- Bed trapeze appropriate for weight of patient
- Emergency room stretcher to accommodate large BMI
- Bariatric tables for operating room
- Bariatric sliders
- Bariatric wheelchairs
- Bariatric resuscitation equipment

12.2 Consider having these items included on an admission cart or listed as available upon request. The cart would include and is not limited to:

- Appropriately sized Blood Pressure cuffs (this may include large and longer length versions)
- Longer Gauge Needles
- Bariatric Bedpan
- Gowns/Pajamas/Pants
- Abdominal Binders
- Limb Slings (for dressing changes)
- Bariatric Incontinent Pads
- Bariatric Sliders

12.3 Larger equipment will necessitate more space to maneuver within the room. Staff need to consider the amount of equipment needed in the room, dimensions of the room and the size of doorways, stairwells (in homes), elevators, etc. when caring for your patient.

<http://www.wrha.mb.ca/professionals/safety/files/SafePatientHandling/BariatricSpaceRequirements.pdf>

Home care guidelines are as follows-space considerations are at:

http://home.wrha.mb.ca/prog/homecare/files/sch_mobility-transfers_GL.pdf

12.4 Home Care Equipment is to be returned if an inpatient admission >3 weeks. For any other equipment please consult Physiotherapy and/or Occupational Therapy before returning mobility or other adaptive equipment.

12.5 WRHA Bariatric Equipment Pool Loan Form

http://home.wrha.mb.ca/prog/clinicalinitiatives/bariatric/files/Bariatric_EquipLoanForm.pdf

12.6 WRHA Bariatric Equipment and Supply decision making criteria guideline

http://home.wrha.mb.ca/prog/clinicalinitiatives/bariatric/files/Bariatric_EquipGuidelines.pdf

13. SAFE PATIENT HANDLING:

13.1 The WRHA Safe Patient Handling and Movement Program contains links to specialized care, including “1.5.11 Special Considerations for Bariatric Patients”. This guideline is based upon the weight and ability of the patient. It is important that individual assessments be performed to determine level of assistance required. The information is then applied to decision-making algorithms to determine the best technique, equipment, and the number of staff required for safe handling and moving. Healthcare providers will be educated on proper techniques for moving your patient. Refer to Safe Patient Handling and Movement Program.

<http://www.wrha.mb.ca/professionals/safety/files/SafePatientHandling/SafePatientHandling2016.pdf>

13.2 Ensure the Patient Handling logo/sign travels with the patient at all times.

14. PHARMACY:

- 14.1 Several factors may alter the pharmacokinetics of drugs. These may involve changes in bodily distribution, protein binding, metabolism, and elimination of many agents. Consideration of these factors is important when calculating drug doses. Whenever possible it is recommended to consult the pharmacist to review the medication profile of the patient.

15. WORKING GROUP COMMITTEE MEMBERS:

- Lori Lamont, Acting Chief Operating Officer and VP, Nursing & Allied Health Professions, WRHA (VP Sponsor)
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APPENDIX A p.1Adult Bariatric Care Patient History

Weight Control and Intervention History

Patients seeking treatment for obesity may have tried different methods of weight control in the past. Documentation of each method tried including the length of Intervention, changes in weight and the costs/benefits of the interventions as seen by the patient are important to include. Both recommended and non-recommended weight control methods should be documented, including interventions that may require further investigation such as eating disorder behaviours, substance abuse or harmful interventions that may require medical assessment. Medication, herbal and supplement history should also be reviewed to determine impact on weight status and evaluate previous interventions for weight management.

Medical and Surgical History: Obesity Focus

Past or current medical and/or surgical history should be evaluated for its impact on the nutrition care of the patient. The following provides an overview of certain medical conditions and surgical procedures and their relationship to weight management.

Cancer

Obesity is linked with an increased risk of cancer of the breast, colon, prostate and endometrium. Weight loss treatment may be contraindicated during certain cancer treatments.

Cardiovascular and Respiratory Health

Although cardiovascular risk can be improved with weight loss, current cardio- respiratory status (e.g. previous cardiac events, hypertension, dyslipidemia) may limit the selection and efficacy of treatment options for weight management including activity, bariatric surgery or weight loss medications.

There are a number of reasons for weight fluctuations related to cardio-vascular and respiratory health that should be evaluated. For example, some medications such as beta blockers can decrease heart rate influencing the ability to manage weight. Weight changes may also be a result of fluid shifts due to cardiac insufficiency or poor cardio-respiratory status which limits exercise tolerance and decreases energy expenditure. Respiratory disorders common in obesity include obstructive sleep apnea, chronic obstructive pulmonary disease (COPD), asthma and obesity hypoventilation syndrome. Smoking cessation can also impact weight and is commonly associated with a weight gain of up to 7 kg. Patient history should include details on smoking (e.g. amount, frequency, start date, and stop date if they have quit smoking).

Endocrine Disorders

Several endocrine disorders (e.g. polycystic ovarian syndrome, hypothyroidism, Cushing's syndrome) impact hormone levels involved in the regulation of metabolic rate or utilization of substrate. Weight gain and alterations to body composition (e.g. increase in body fat percentage) may result if untreated.

Reproductive Health

Obesity can impair the fertility of both men and women. However, weight loss can produce hormone changes associated with improved fertility. For women who have had children, it is important to assess the weight changes associated with each pregnancy. Pre-pregnant weight, weight change during pregnancy, birth weight, and maternal weight changes after the birth should be documented. Women are at a higher risk of obesity if they do not lose their pregnancy weight by 6 months post-partum. Some women have experienced significant weight gain with pregnancy (e.g. > 16 kg), contributing to obesity. Women with menorrhagia may be at increased risk of iron deficiency anemia.

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APPENDIX A p.2Adult Bariatric Care Patient History

Gastrointestinal Disorders

Gastrointestinal disorders common to obesity (e.g. gastroesophageal reflux disease, hernias) may impact nutritional status and food selection. Non-alcoholic fatty liver disease (NAFLD) is common in people with obesity and may not cause alterations in liver enzymes. Weight loss may be required to improve liver treatment outcomes (e.g. transplant). If the patient presents with a history of gastrointestinal surgery (e.g. resections, ostomy, fundoplication, hernia repairs), potential barriers exist for treatment with bariatric surgery.

Mental Health Disorders

Mental health disorders, especially if undiagnosed or untreated, may present a significant barrier to obesity management. Several mental health diagnoses and related medications can impact a patient's level of alertness and cause changes in taste, mouth care (dry mouth), appetite, bowel function and weight. Depending on the diagnosis and status, individuals may have an impaired ability to understand instructions and/or implement behaviour change. A referral for treatment of mental health concerns prior to aggressive treatment and active participation in a weight management program is often required.

Musculoskeletal/Neurological Impairments

Musculoskeletal and/or neurological concerns may limit mobility and exercise tolerance, thereby decreasing energy expenditure. It is not uncommon for individuals with obesity to have orthopedic injuries or surgeries related to the spine or joints, affecting mobility. Chronic pain associated with muscular-skeletal and/or neurological problems may also impair one's ability to perform activities of daily life including shopping, cooking, eating and activity. On top of that, the medications to treat pain may cause constipation and decreased appetite. Cognitive impairments may impact an individual's ability to read or write, communicate, learn, remember or understand instructions, presenting significant barriers to implement behaviour change.

Renal Disorders

People with renal disease may experience fluid shifts that impact weight status. Weight loss may be recommended to improve renal treatment outcomes (e.g. transplant, dialysis).

Skin Integrity

Compromised skin integrity may be due to yeast or fungal infections in skin folds, venous stasis or diabetic ulcers or poor self-care.

Plastic Surgery

Plastic surgery (e.g. mammoplasty, panniculectomy) and cosmetic surgery (e.g. liposuction) may be part of the surgical history of patient with obesity.

Some patients may present with a history of bariatric surgery. Details on the type of procedure should to be documented in order to determine the nutrition risk and direct investigations to provide appropriate recommendations

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APPENDIX B

Body Mass Index

Canadian Guidelines for Body Weight Classification in Adults²⁸

Classification	Body Mass Index (kg / m ²)	Risk of Developing Health Problems
Underweight	≤ 18.5	increased
Normal	18.5 - 24.9	least
Overweight	25.0 - 29.9	increased
Obesity Class I	30.0 - 34.9	high
Obesity Class II	35.0 - 39.9	very high
Obesity Class III	≥ 40	extremely high

- A normal weight as defined by BMI may be an unrealistic and unattainable weight loss goal for obese individuals to reach due to the total amount of weight loss required.²⁷
- Important clinical outcomes and reduction of health risk result from a reduction of 10% of body weight and BMI.¹⁹

Note: Recommended BMI Standards for Adults older than 65 Years of Age is 23 to 29.9

APPENDIX CBariatric Surgery

Bariatric surgery may be appropriate for well-informed and motivated individuals with a BMI ≥ 35 kg/m² with obesity-related co-morbidities, or BMI ≥ 40 kg/m² with or without obesity related co-morbidities and acceptable operative risks.¹⁹

Current Inclusion Criteria:

- Age 18-60 years
- BMI between 40-55
- BMI greater than 35 with obesity-related complications
- Failure of diet and exercise
- Compliant patient with regards to: follow-up, diet, exercise and behavior modification

Contraindications include:

- Noncompliance with follow-up, diet, exercise and behavior modifications
 - Immobility
 - Untreated or unmanaged psychiatric/eating disorder
 - Untreated or unmanaged substance abuse
 - Several medical problems (e.g.-ischemic heart disease or pulmonary hypertension)
 - Age greater than 60
 - Smoking (must be smoke free for 6 months before being considered for program)
- Bariatric surgery referral form
(http://www.wrha.mb.ca/professionals/familyphysicians/files/Bariatric_Referral_Form_2013.pdf)

APPENDIX D

Bariatric Care Admission, Discharge and Transitions Algorithm

