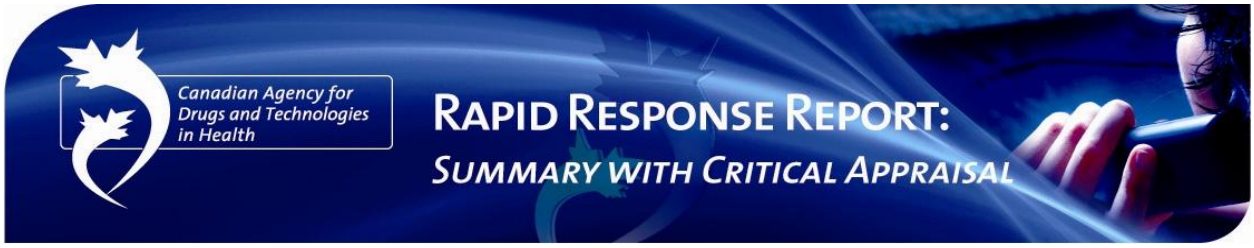

TITLE: Standard Equipment for the Usual Care of Bariatric Patients: A Review of the Clinical Evidence and Guidelines

DATE: 19 January 2012

CONTEXT AND POLICY ISSUES

Obesity is defined as a body mass index greater than 30 kg/m^2.[1,2] Obese individuals are at greater risk of chronic diseases such as diabetes, cardiovascular disease, liver disease and certain cancers.[1] In 2007, the self-reported rate of adult obesity in Canada was 17 percent, but some estimates are as high as 25 percent.[1]

In addition to associated health issues, bariatric patients face challenges to routine care. Standard equipment and facilities may not be suitable to accommodate the additional size or weight of obese patients.[3] For example, standard patient scales may have insufficient weight capacity or standard blood pressure monitor cuffs may be too small. As the number of patients with special obesity-related needs increases, health care facilities are recognizing that appropriate facilities and resources for the treatment and accommodation of bariatric patients are needed.[3,4] However, specialized equipment comes at increased cost, in some cases more than double standard versions of the same items,[3] so it is important to determine what modifications are necessary to provide adequate care for bariatric patients.

The purpose of this report is to review the clinical evidence and clinical practice guidelines regarding standard equipment required for the usual care of bariatric patients.

RESEARCH QUESTIONS

1. What is the clinical evidence regarding the types of standard equipment required for the usual care of bariatric patients?

2. What are the evidence-based guidelines regarding the types of equipment required for the usual care of bariatric patients?

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KEY MESSAGE

No evidence was identified regarding standard equipment required for the usual care of bariatric patients. One guideline recommends the provision of facilities and equipment capable of accommodating the size and weight of obese patients, based on limited empirical evidence.

METHODS

Literature Search Strategy

A limited literature search was conducted on key resources including PubMed, The Cochrane Library (2011, Issue 12), University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and abbreviated list of major international health technology agencies, as well as a focused Internet search. No filters were applied to limit the retrieval by study type. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2006 and December 14, 2011.

Selection Criteria and Methods

One reviewer screened the titles and abstracts of the retrieved publications to select articles for full-text review. A second reviewer evaluated the full-text publications for the final article selection, according to selection criteria presented in Table 1.

Table 1: Selection Criteria

Population	Bariatric patients (morbidly obese, up to 750 pounds)
Intervention	Equipment required for every day care that has been modified or designed to be used in bariatric patients
Comparator	Standard equipment or no comparator
Outcomes	Guidelines, standards, and best practice Evidence regarding the most appropriate or necessary equipment
Study Designs	Health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies, and evidence-based guidelines

Exclusion Criteria

Studies were excluded if they did not meet the selection criteria, were duplicate publications or included in a selected systematic review, did not provide complete methods, or were published prior to 2006.

Critical Appraisal of Individual Studies

Guidelines were assessed for quality using the Appraisal of Guidelines for Research and Evaluation instrument.[5] Domains assessed were scope and purpose, stakeholder involvement, rigour of development, clarity and presentation, applicability, and editorial independence. Numeric scores were not calculated. Instead, the strengths and limitations of each guideline were described. No health technology assessments, systematic reviews, randomized controlled trials, or non-randomized studies were identified for critical appraisal.

SUMMARY OF EVIDENCE

Quantity of Research Available

The literature search yielded 442 citations. Upon screening titles and abstracts, 437 citations were excluded and five potentially relevant articles were retrieved for full-text review. An additional two potentially relevant reports were retrieved from grey literature and hand searching. Of the seven potentially relevant reports, six did not meet the inclusion criteria. The study selection process is outlined in a PRISMA flowchart (Appendix 1). One evidence-based guideline was included in this review.[4] No health technology assessments, systematic reviews, randomized controlled trials, or non-randomized studies were identified for inclusion. Additional references of potential interest are provided in Appendix 2.

Summary of Study Characteristics

The included guidelines were published in the United States in 2009.[4] The recommendations provided are an update on best practice guidelines for specialized facilities and resources necessary for weight loss surgical programs.[2] A summary of the strategy to gather evidence for recommendations is described in Appendix 3.

Population and interventions

The guidelines considered requirements for obese patients undergoing weight loss surgery (Roux-en Y gastric bypass, laparoscopic weight loss surgery, and laparoscopic adjustable gastric band surgery).[4] While the main focus of the report was surgical care, recommendations were provided on perioperative management and general equipment requirements.

Grading of recommendations and levels of evidence

The included guidelines developed their recommendations following a systematic review of the literature and graded the strength of recommendation based on the quality of evidence.[4] Study inclusion and exclusion criteria are described in Appendix 3. Recommendations were assigned a letter grade of A to D depending on the level of evidence. Evidence from at least one well-conducted randomized controlled trial (RCT) or a systematic review of RCTs was categorized as level A. Data from well-conducted cohort studies or meta-analysis of cohort studies was graded B, evidence from uncontrolled or poorly controlled clinical trials, retrospective case-control studies, or case series was rated C. Category D evidence consisted of expert opinion or clinical experience of acknowledged authorities.

Summary of Critical Appraisal

Clinical questions, objectives and target population of the guidelines were explicitly described.[2,4] Systematic methods were used to search for evidence and criteria for inclusion were clearly described. Recommendations were made by an expert panel, which included weight loss surgeons, nurses, an ethicist, a health plan medical director, physicians who care for patients with obesity, and a consumer representative, but it was unclear whether the guidelines were piloted among target users. Key recommendations are easily identifiable, and the level of evidence supporting the recommendations is explicitly stated, however due to the scarcity of high quality evidence, all recommendations were graded as category D (expert opinion). Organizational barriers and detailed cost implications of applying the recommendations have

not been considered. Potential conflicts of interest of guideline development members were recorded. Details of the quality assessment are provided in Appendix 4.

Summary of Findings

The guideline provided recommendations on essential and optional equipment for care of bariatric patients.[4] All recommendations were based on category D evidence (expert opinion)

Essential equipment

The guideline authors indicated that wide beds capable of supporting up to 440 pounds and wide, floor-bolted examination tables are essential. Wide, floor mounted, reinforced toilets should also be provided. Wide wheelchairs, stretchers and walkers were recommended. Other essential equipment includes wide blood pressure cuffs, biphasic defibrillators, longer needles, appropriately sized scales, and size-appropriate sequential compression devices and emergency airway equipment. Computed tomography scanners and magnetic resonance imaging should have 400 pound capacity. Well-defined plans for evaluation and treatment of patients who cannot fit into available diagnostic equipment are recommended.

Optional recommendations

In addition to the essential equipment, beds capable of supporting up to 880 pounds and high-weight capacity (600 pound) CT and MRI scanners were recommended.

Limitations

No information was available regarding clinical evidence for standard equipment for the usual care of bariatric patients. Information is drawn from one clinical practice guideline, which provides recommendations on the care of obese patients undergoing weight loss surgery. While some recommendations include equipment that may be used on a day-to-day basis, the guideline focus and literature scope was bariatric surgical patients and not usual care.

The guideline recommendations were based on a literature search completed in 2007 and may not reflect more recent advances in bariatric-appropriate equipment. Despite a systematic review of the literature, evidence to support the guidelines was limited and all recommendations were based on expert opinion and other low quality evidence. The included guidelines fail to consider operational barriers or cost implications for implementation which may limit applicability. Furthermore, the guidelines were developed in the United States and may not consider issues specific to the Canadian healthcare context.

CONCLUSIONS AND IMPLICATIONS FOR DECISION OR POLICY MAKING

No evidence was found regarding the types of standard equipment required for the usual care of bariatric patients. One evidence-based guideline was identified providing equipment recommendations for care of obese patients undergoing weight loss surgery. These guidelines recommend the provision of beds, toilets, wheelchairs, and diagnostic and interventional equipment capable of accommodating the size and weight of bariatric patients. These recommendations were based on expert opinion and are limited in both scope and currency.

The lack of randomized controlled trials or non-randomized studies suggests the need for further research on the utility, necessity, and cost-effectiveness of current and emerging technologies for the care of obese patients.

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REFERENCES

1. Public Health Agency of Canada. Obesity in Canada: snapshot [Internet]. Ottawa: PHAC; 2009. [cited 2012 Jan 5]. Available from: http://www.phac-aspc.gc.ca/publicat/2009/oc/pdf/oc-eng.pdf

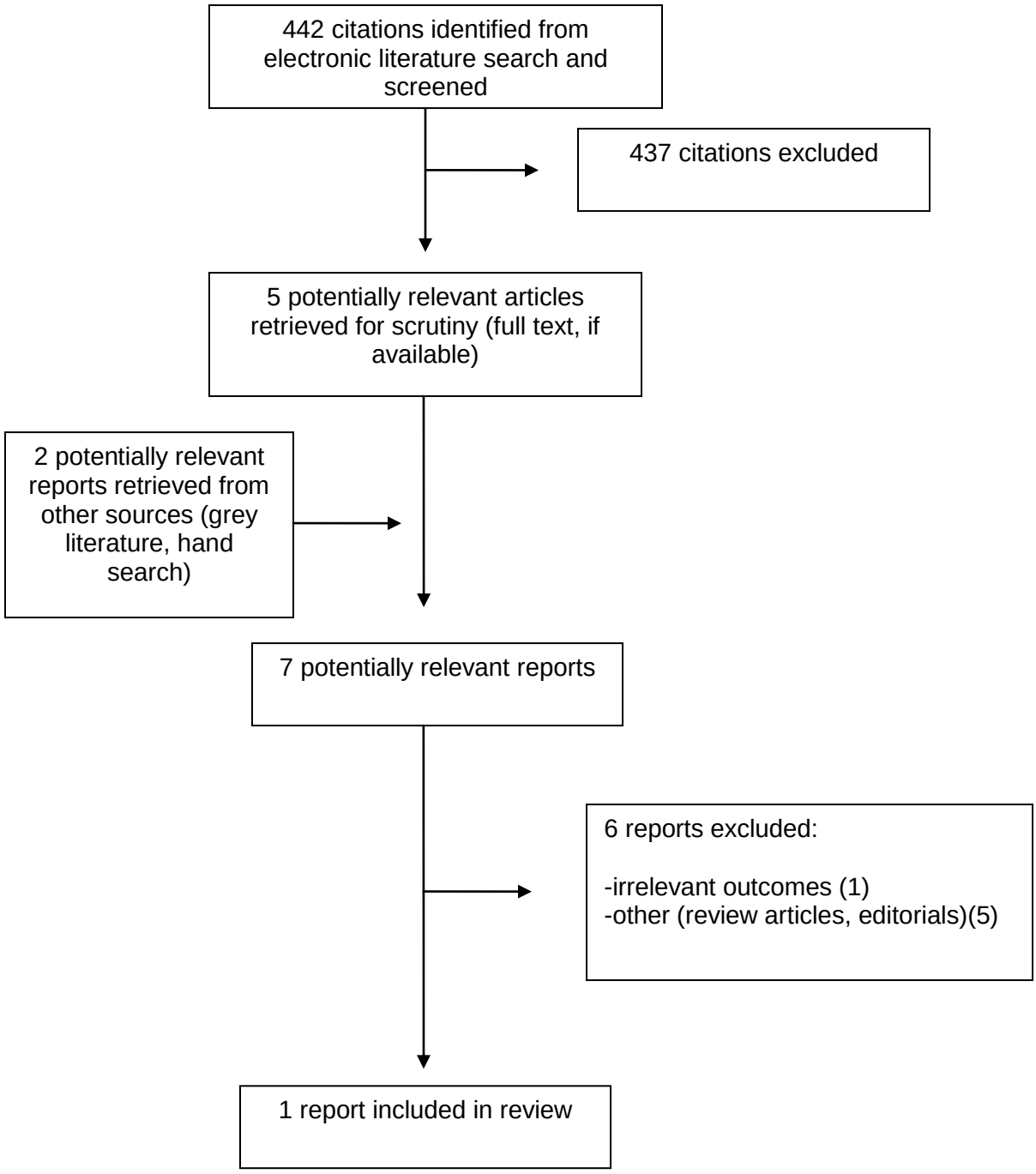
2. Lehman Center Weight Loss Surgery Expert Panel. Commonwealth of Massachusetts Betsy Lehman Center for Patient Safety andMedical Error Reduction Expert Panel on Weight Loss Surgery: executive report. Obes Res. 2005 Feb;13(2):205-26.

3. Diconsiglio J. Hospitals equip to meet the bariatric challenge. Rising number of obese patients necessitates specific supplies. Mater Manag Health Care. 2006 Apr;15(4):36-9.

4. Lautz DB, Jiser ME, Kelly JJ, Shikora SA, Partridge SK, Romanelli JR, et al. An update on best practice guidelines for specialized facilities and resources necessary for weight loss surgical programs. Obesity (Silver Spring). 2009 May;17(5):911-7.

5. The AGREE Collaboration. Appraisal of guidelines for research and evaluation (AGREE) instrument [Internet]. London: The AGREE research trust; 2001 Sep. [cited 2012 Jan 18]. Available from: http://www.agreetrust.org/?o=1085

Appendix 1: Selection of Included Studies



Appendix 2: Additional Articles of Potential Interest

Guidelines – no methods reported

Equipping your facility for bariatric patients. Health Devices. 2008 Mar;37(3):69-75. PubMed: PM18771217

Guidelines for the care of bariatric patients [Internet]. Dartford (UK): Dartford and Gravesham NHS Trust; 2006. 26 p. [cited 2012 Jan 4]. Available from: http://www.safeliftingportal.com/hottopics/documents/0RAPY8V7X0_Guidelines_on_the_Care_of_Bariatric_Patients.pdf

Trauma resource tool: resource assessment for care of the morbidly obese trauma patient [Internet]. Olympia (WA): Washington State Department of Health, Office of EMS and Trauma System; 2006. 6 p. [cited 2012 Jan 4]. Available from: http://www.doh.wa.gov/hsqa/emstrauma/download/resource-assess-tool-obese-trauma-pt.pdf

Other articles

Singh N, Arthur HM, Worster A, Iacobellis G, Sharma AM. Emergency department equipment for obese patients: perceptions of adequacy. J Adv Nurs. 2007 Jul;59(2):140-5. PubMed: PM17543014

Appendix 3: Characteristics of Included Guidelines

First author, Publication year, Country	Search Strategy	Inclusion Criteria	Exclusion Criteria
Lautz et al.[4] 2009 USA	Original search:[2] MEDLINE, Cochrane Library, hand searching Jan 1980 to April 2004 Update:[4] PubMed, MEDLINE, Cochrane Library April 2004 to May 2007	English language Systematic reviews, RCTs, controlled trials, cohort studies Patients undergoing gastric bypass, Roux-en-Y gastric bypass, open vs. laparoscopic surgery Minimum follow up: 6 months	Selection criteria not indicated Sample size (n<10) Drop-out rate (>50%)

Appendix 4: Summary of Critical Appraisal

First author, Publication year, Country	Strengths	Limitations
Lautz et al.[4] 2009 USA	• Clear scope and target populations • Systematic methods used to search for evidence (Pubmed, MEDLINE, Cochrane library, search updated May 2007) • Inclusion and exclusion criteria was clearly described • Recommendations panel included a consumer representative • Key recommendations are easily identifiable and are specific and unambiguous • Potential conflicts of interest have been recorded	• Recommendations based on low-quality evidence (Level D, expert opinion) • Guidelines not piloted among target users • Organizational barriers and cost implications not considered

Appendix 5: Summary of Findings

First author, Publication year, Country	Essential recommendations	Optional recommendations
Lautz et al.[4] 2009 USA	*Equipment (pg. 913)* -Wide in-patient beds, standard to 440 lb -lifting and transferring equipment -wide commodes -wide wheelchairs, stretchers and walkers -wide blood pressure cuffs -biphasic defibrillators -sequential compression devices -emergency airway equipment *Operating Room (pg. 913)* -Wide operating tables with appropriate weight capacity -extra-long abdominal instruments -43 to 46 cm laparoscopes -appropriately sized retractors *Radiology (pg. 913)* -Wide tables with appropriate weight capacity -CT and MRI scanners with 400 lb capacity "Well-defined plans for the evaluation and treatment of post-WLS surgery patients with potential complications who cannot fit into available diagnostic equipment." (pg. 912)	*Equipment (pg. 914)* -Wide beds, up to 880 lb capacity -ceiling-mounted transfer equipment *Operating room (pg. 914)* -Designated operating room *Radiology (pg. 914)* -Ct and MRI scanners with 600 lb capacity (high-weight capacity scanners)

cm = centimeter, lb = pound, CT = Computed tomography, MRI = magnetic resonance imaging
*All recommendations are based on level D evidence (expert opinion)