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Competencies and skills to enable effective care of severely obese patients undergoing bariatric surgery across a multi-disciplinary healthcare perspective: a systematic review

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Executive summary

Background

The incidence of severe and complex obesity with co-morbidity and high risk of mortality is increasing globally. Bariatric surgery is the only intervention leading to sustained weight reduction, and the number of procedures carried out is increasing. There is variability across the UK in the provision of bariatric services and in perceptions of optimum care. A key factor believed to be integral is a multidisciplinary team (MDT) specifically skilled for the speciality. However, there is a lack of clarity on the competencies required for specific roles within the bariatric surgery team.

Objectives

This review synthesized literature on perceived competencies and skills required to provide safe, meaningful and appropriate care for severely obese patients undergoing bariatric surgery.

Inclusion criteria

Types of participants

The review initially concentrated on four key roles: surgeon, nurse, dietitian, and psychologist. Where available, literature pertaining to other practitioners such as physiotherapists and anaesthetists was included.

Phenomenon of interest

Competencies and skills required by MDT members to provide care for severely obese patients undergoing bariatric surgery.

Types of studies

The review included qualitative research studies, policy documents, standards for clinical care, guidelines, narratives, opinion pieces and discussion papers.

Search strategy

A search strategy was designed to access both published and unpublished materials in the following databases: CINAHL, Medline, ERIC, PsycINFO, IngentaConnect, The Knowledge Network, and Web of Knowledge. Grey literature was searched in British Library Ethos and National Institute for Social Care & Health Research (NISCHR).

Methodological quality

Papers selected were independently appraised for quality by two reviewers using the Joanna Briggs Institute Narrative, Opinion and Text Assessment and Review Instrument (JBI-NOTARI).

Data collection

Data were extracted using JBI-NOTARI data extraction tool. Extracted data included participant information, logic of argument, and author conclusions.

Results

Thirty-six papers were screened, and 13 were excluded because they lacked information about competencies. Twenty-three papers met the inclusion criteria and proceeded to quality assessment.

The literature was poorly developed, consisting of text and opinion type articles. Papers were pooled using JBI-NOTARI, involving the synthesis of publication conclusions into categories, which were then amalgamated in meta-syntheses. Three overall synthesised findings emerged:

- Safe, meaningful and appropriate care of severely obese patients undergoing bariatric surgery may be delivered if staff in each role achieve a minimum set of competencies.
- Safe, effective and meaningful care for bariatric surgery patients may require a minimum set of competencies for managing a bariatric surgery unit and the MDT.
- To achieve the competencies for safe, effective and meaningful care for bariatric surgery patients, certain approaches to education may be developed.

Conclusions

Reviewed articles gave some broad indication of areas in which to develop competencies. Consensus between practitioners is required to take forward strategies for competency development.

Implications for practice

Sensitive care, preoperative psychological assessment, postoperative care, including identification of complications and team management, are areas in which competencies in the MDT should be developed.

Implications for research

Mixed methods studies to establish best practice and required competencies. Evaluative component in all educational interventions. Comparison studies of methods of delivery of competency based education, and measurement of effectiveness.

Keywords

Bariatric surgery, severe obesity, complicated obesity, multidisciplinary team, competency, skills.

Introduction

Background

Severe and complex obesity, defined as a body mass index (BMI) of 35 kg/m² or more with co-morbidities is a disease state associated with higher risk of mortality¹ and higher risk of developing a range of health problems that may reduce a person's lifespan by up to 10 years.² Obesity is the fifth leading cause of mortality globally, with up to 2.8 million adults dying as a result each year.³ It is accountable for 44% of the burden of diabetes, 23% of the number of cases of ischaemic heart disease, and between 7-41% of cancers.³ In addition, the incidence of severe obesity has increased faster than more moderate cases of obesity, and shows no signs of slowing.⁴ Bariatric surgery is the only intervention that has been found to produce sustained weight reduction, reduce the incidence of co-morbidities, and decrease early mortality.² The costs to the healthcare system are subsequently reduced, as is the need for many prescription drugs.⁵

Between 2000 and 2009, a total of 189 bariatric procedures took place in the National Health Service (NHS) in Scotland.⁶ However, numbers are increasing and currently an average rate of three bariatric procedures per 100,000 population are carried out each year.⁶ This equates to approximately 156 procedures annually across the 13 centres providing this type of specialized level of service.⁷ Procedures are also carried out in the private sector and for the NHS in the independent sector,⁸ although similar statistics are unavailable for these sectors. There is a range of procedures offered to patients including endoscopic insertion of gastric balloons and endobarrier, surgical gastric bypass, adjustable gastric banding, biliopancreatic diversion, sleeve gastrectomy and vertical banded gastroplasty.¹ Most operative procedures are carried out laparoscopically, decreasing the recovery time and complication risk for the patient.⁹ In order to provide a service to bariatric patients that is both efficient and cost effective, the British Obesity and Metabolic Surgery Society (BOMSS) values bariatric care that is safe, sensitive and recognises best practice.¹⁰ However, BOMSS also acknowledges that present services are operated under a range of different specifications, with a range of perceptions of what constitutes safe delivery and minimum standards for good practice.

The British Obesity and Metabolic Surgery Society (BOMSS) proposes core requirements for a bariatric service that include systems within institutions and environmental infrastructures that are suited to providing an effective bariatric service. For example, as most bariatric surgery is laparoscopic, high definition video equipment is viewed as essential.¹⁰ Within institutions, whether in the NHS, independent or private sector, the key factor ensuring optimal care is provided to bariatric patients is the availability of a multidisciplinary team (MDT) that is led by specialist bariatric surgeons and includes team members who are trained and competent with particular specialized knowledge, skills and attitudes.^{8,11} Several different workforces may be involved in the provision of these services; for example, the National Institute for Health and Clinical Excellence (NICE) recommends that bariatric surgical teams comprise physicians, surgeons, bariatric nurses and bariatric dietitians.¹² Other staff groups may include psychologists, anaesthetists,¹⁰ and physiotherapists.¹² The National Institute for Health and Clinical Excellence indicate MDTs should provide patients with preoperative assessment, information on procedures, postoperative assessment, management of co-morbidities, psychological support, information and access to plastic surgery, and access to specialist equipment,

e.g. scales, Zimmer frames.¹⁴ However, a recent report on bariatric services in England indicated that provision of a structured MDT, which constitutes best practice, across NHS and private services was inconsistent.¹⁵ In addition, the relative immaturity of bariatric services precludes the availability of studies on outcome and effectiveness of case management programs.^{8,11} Perceptions and estimations of competency of practice for particular bariatric surgeons and bariatric surgery centres are often based on analysis of mortality, morbidity, length of hospital stay and statistics related to volume of operations carried out.^{8,11} A meta-analysis by Markar et al.¹⁶ has shown that mortality and morbidity are reduced at high volume centres and by high volume surgeons. There was insufficient data for analysis related to length of hospital stay. High volume surgeons and centres may indicate greater clinical competence.

The preparation of the MDT is seen as key to a high quality service,¹⁴ yet currently there is little clarity about the education, training, skills and attitudes that constitute competency. It was the intention of this systematic review to explore the requirements to be met within the MDT that are perceived to be essential for safe, meaningful and appropriate care of severely obese patients undergoing bariatric surgery. The scope of the review was developed to enable identification of required competencies and the level of performance to be achieved by each workforce from a policy, healthcare professional, and/or patient perspective. It was also an intention to specify the minimum level of competence required for a high quality bariatric service, and provide directions for the extent of education and training of members of the MDT required for the minimum level to be achieved.

Several tools were used to review existing evidence. In particular, a systematic review of the published papers and journals was carried out with the intention of including any qualitative research, international guidelines, narrative and opinion. It was anticipated the findings of the review would provide the basis for the development of policies and standards for the management of severe and complex obesity. Moreover, it would identify any gaps in knowledge and allow the development of new courses to fill educational gaps. A search of The Cochrane Library, The Joanna Briggs Institute Database of Systematic Reviews and Implementation Reports, Medline, CINAHL, and the IngentaConnect databases revealed no existing review of competencies for healthcare staff for the care of bariatric surgery patients.

The objectives, inclusion criteria and methods of analysis for this review were specified in advance and documented in a published protocol.¹⁷

Objectives

The objective of this review was to synthesize the best available qualitative evidence on the perceived competencies and skills required by members of a multidisciplinary bariatric surgery team to provide safe, meaningful and appropriate care for severely obese patients undergoing bariatric surgery.

The specific question addressed was:

What competencies and skills are required by members of a multidisciplinary bariatric surgery team to enable safe, meaningful and appropriate care for severely obese patients undergoing bariatric surgery?

Inclusion criteria

Types of participants

The review focused on specialist surgical services for patients with severe and complex obesity (BMI 40 or more), provided internationally within public, independent or private sectors. Study participants of interest were members of the MDT providing specialist services. The review initially concentrated on four key roles within the MDT, all identified as key contributors to the best possible provision of care for bariatric patients:

a) specialist bariatric surgeon; b) specialist bariatric nurse; c) specialist bariatric dietitian; d) psychologist and/or psychiatrist.

Where available, literature pertaining to practitioners in other key roles was included: e) physiotherapists; f) specialist physicians; g) anaesthetists; h) radiographers and radiologists.

Particular competencies of the individual MDT members to be explored pertained to the specialist knowledge, skills, and understanding required for provision of a high quality service.

Phenomena of interest

The phenomena of interest for the review was the competencies and skills required by multidisciplinary team members to provide care for severely obese patients undergoing bariatric surgery. All types of bariatric procedures were of relevance to the review.

Types of studies

The review considered studies that focused on qualitative data including, but not limited to, designs such as phenomenology, grounded theory, ethnography and action research. In addition, policy documents, standards for clinical care, guidelines, narrative, opinion and discussion papers were considered.

Search strategy

The literature search strategy was designed to access both published and unpublished materials and the JBI three-step search strategy was adopted. Firstly, a limited search of CINAHL and MEDLINE, using the EBSCOhost user interface, was conducted followed by an analysis of the text words contained to identify any relevant keywords in the title, abstract and subject descriptors, and of the index terms used to describe the article. Secondly, a search utilizing the keywords and index terms identified was performed across all relevant databases. Thirdly, terms were used as suitable descriptors to initiate the search and were adapted to suit the requirements of each database. Appropriate Boolean operators such as AND/OR and NOT were used to combine search terms. Bariatric surgery was uncommon in the UK prior to 1995, and for this reason only papers and articles published from 1995 to July 2013 were included. Included papers were written in the English language.

The databases searched were CINAHL, Medline, ERIC, PsycINFO, Ingenta Connect, The Knowledge Network, Web of Knowledge, PubMed, National Institute for Social Care and Health Research (NISCHR), InterNurse, and the British Library ETHOS (Electronic Theses Online Service).

Keywords used were bariatric/bariatric surgery, competence/competency/competencies, skills, care, multidisciplinary, surgeon, nurse, dietitian, anaesthetist, psychologist, psychiatrist, metabolic

physician, radiographer, physiotherapist, policy, standards, guidelines, qualitative, interviews/interviewing, focus group

The search strategy used for CINAHL can be seen in Appendix I.

Method of the review

Selected papers were independently appraised for eligibility by two reviewers (AS and GB), and those papers determined to fit the inclusion criteria were critically appraised using the relevant Joanna Briggs Institute (JBI) online program within the System for the Unified Management, Assessment and Review of Information (SUMARI) suite. The JBI Reviewers Manual¹⁸ was used to direct the assessment process. No qualitative research studies in the topic area were found in the database searches; therefore no qualitative meta-synthesis took place. Narrative, opinion and other text articles were assessed using the Narrative, Opinion and Text Assessment and Review Instrument, JBI-NOTARI (Appendix II). Policy documents, standards and guidelines were also assessed using JBI-NOTARI. The two reviewers independently assessed papers and a third reviewer (PK) was available to resolve any disagreements, though not required.

Data collection

Data were extracted from papers using the standardized data extraction tool in JBI-NOTARI (Appendix III). The extracted data included specific details about, for example, populations represented, logic of argument, and data analysis. Papers were read repeatedly and important points identified and extracted as the author's conclusions. To support each conclusion an extract from the text was identified for use as an illustration.

Data synthesis

Papers were pooled using JBI-NOTARI. This involved a three stage process:

1. Extraction of Level 1 author's conclusions from full text articles and rating each according to its assessed validity (unequivocal, credible, unsupported). Unequivocal relates to evidence beyond reasonable doubt which may include conclusions that are matter of fact, directly reported or observed and not open to challenge. Credible relates to those conclusions that are, albeit interpretations, plausible in light of the argument developed by the author(s). Unsupported relates to conclusions not supported by the text. No primary research studies were reviewed and no direct quotations were available in the texts; therefore, no conclusion included in the review was graded as unequivocal. All conclusions were graded as credible as they were derived from the texts of included studies and supported by relevant statements of illustration.
2. Categories were developed and assigned (Level 2 conclusions) based on similarity of meaning of Level 1 conclusions.
3. A set of synthesized conclusions were developed (Level 3 conclusions) after subjecting the categories to meta-synthesis. This represents the meta-aggregation of Level 1 and Level 2 conclusions.

4. Recommendations for practice and research were developed from the meta-syntheses and graded according to Joanna Briggs Grades of Recommendation. All were Grade B (weak) due to the lack of supporting research evidence.

Results

Systematically searching the databases, using the search strategy and process outlined identified 1,886 potentially relevant papers. Titles and abstracts were screened for each database and 1850 papers were excluded. Thirty-six full text papers considered congruent with inclusion criteria were retrieved through the university library catalogue, and inter-library loan requests (see Appendix IV for list of studies selected for retrieval). After reading the full text articles a further 13 were excluded based on content not being relevant to competencies for caring for bariatric surgery patients (12 papers), and one paper reporting quantitative findings. Twenty-three papers were eligible for review and were appraised in NOTARI for methodological quality, after which no further papers were excluded (see Figure 1).

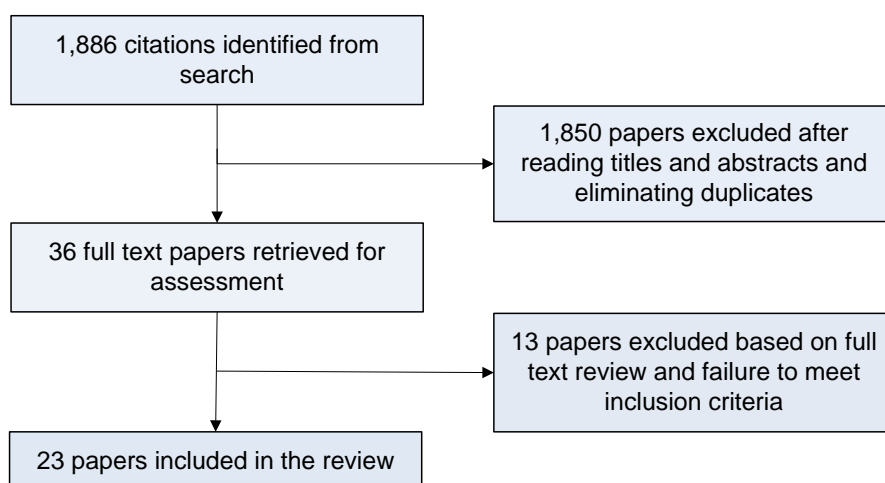


Figure 1: Study selection flowchart

Description of included articles

Papers analyzed using NOTARI were, in general, published by authors who had interest or involvement in bariatric services from an academic or practice perspective. All originated from authors working in the USA and one guideline paper took an international perspective.¹⁹ Nine papers were relevant to nursing practice, seven took a multidisciplinary perspective, four examined surgeon competencies, one focused on anaesthetists, and two on psychologists or mental health practitioners. Most papers provided narrative descriptions of services (11 papers), and/or author opinions on a range of aspects of bariatric surgery, with staff competencies being only a small part of content (eight papers). For example, Ide, Fitzgerald-O'Shea and Lautz²⁰ provided a descriptive account of the development of a service with a small section on MDT competencies. However, there were papers concentrating specifically on preparation of a staff group for bariatric surgery care, for example, Marzen-Groller and Cheever²¹ considered student nurse preparation, and Huseman²² discussed

competencies for nurses in the bariatric surgery team. No paper relevant to the competencies a dietitian may require was identified in the search. Two papers by Mulligan et al.^{23,24} used literature reviewing to develop recommendations for bariatric nursing service development. The majority of evidence gathered in these studies was from text and opinion papers, and the authors developed their stances with acknowledgement of the lack of research evidence available. Four other papers in the review provided guidelines, two for education and training for nurses^{25,26} and two for skills development for surgeons.^{19,27} Reviewing the papers gave the impression of well developed facilities providing key services pre-operatively, perioperatively, in the immediate postoperative period, as well as in the long term.

Appendix V provides detail of the characteristics of the papers included in the review.

Methodological quality

Overall the quality of the papers was fairly low with mid-range values (expressed as percentages) recorded for most assessment criteria across the papers reviewed (see Table 1 below). Most included papers were clear about authorship and institutional affiliations (21 from 23; 91%). However, their standing in the field of bariatric surgery was less transparent with only 30% providing some provenance for their opinions. Background sections in 77% of the papers provided the rationale for the written contribution though only 43% were analytical and 52% used existing literature to support arguments. The literature in the area of interest is, on the whole, poorly developed, and there is a lack of evaluative research on which to assess current educational provision and on which to base developments. However, the narrative, opinion and guideline pieces reviewed here reveal some ongoing thoughts on what may be important considerations for staff development in bariatric surgery and the type of competencies that may be required. The lack of underpinning evidence prohibits any clarity on what may be the optimal strategy for addressing competency development. Reviewing the material here may therefore only provide a baseline from which to develop the evidence base. Table 2 indicates the number of studies maintained in the review following critical appraisal. No paper was excluded at this point as the text and opinion papers form the baseline from which to develop research to inform education and training strategies for staff in bariatric surgery MDTs.

Table 1: Final methodological quality assessment table

Citation	Q1	Q2	Q3	Q4	Q5	Q6	Q7
Wright, K., Bauer, C., 2005	Y	Y	Y	Y	N	N	Y
McIntyre, T., Jones, D.B., 2005	Y	Y	N	Y	Y	Y	U
Marzen-Groller, K.D., Cheever, K.H., 2010	Y	U	N	Y	N	N	Y
Le Mont, D., Moorehead, M.K., Parish, M.S., Reto, C.S., Ritz, S.J., 2004	Y	Y	Y	Y	Y	Y	Y
Cowan, G.S.M., 1998	Y	U	Y	Y	N	N	Y

Huseman, S., 2009	Y	U	Y	Y	Y	Y	Y
McGinley, L.D., 2008	Y	U	N	U	N	N	U
Greer, A.G., 2012	Y	N	N	Y	Y	Y	U
Ide, P., Fitzgerald-O'Shea, C., Lautz, D.B., 2013	Y	U	N	Y	N	U	Y
Michalsky, M., Kramer, R.E., Fullmer, M.A., Pofuss, M., Porter, R., Ward-Begnoche, W., Getzoff, E.A., Dreyer, M., Stoltzman, S., Reichard, K.W., 2011	Y	Y	Y	N	N	N	U
Ohio Board of Nursing, 2010	N	U	N	Y	N	N	U
Mulligan, A., Young, L.S., Ranadall, S., Raiano, C., Velardo, P., Breen, C., Bushee, L., 2005	Y	U	Y	Y	Y	Y	U
Mulligan, A.T., McNamara, A.M., Boulton, H.W., Trainor, L.S., Raiano, C., Mullen, A., 2009	Y	U	N	Y	Y	Y	U
Schirmer, B.D., Schauer, P.R., Flum, D.R., Ellsemere, J., Jones, D.B., 2007	Y	U	N	Y	U	Y	U
Wadhwa, A., Alvarez, A.O., 2013	U	U	N	Y	N	Y	U
Sabol, V.K., Hammersla, M., Reedy Idzik, S., 2012	Y	U	U	Y	Y	Y	U
Clements, R., Saber, A., Teixeira, J., Provost, D., Fanelli, R., Richardson, W., 2011	Y	Y	N	U	U	U	Y
Bradley, C., 2007	Y	Y	U	Y	Y	Y	U
Scarano, E.M., 2009	Y	U	N	N	N	N	N
Welton, R.H., 2007	Y	U	N	Y	Y	Y	U
Lautz, D.B., Jiser, M.E., Kelly, J.J., Shikora, S.A., Partridge, S.K., Romanelli, J.R., Cella, R.J., Ryan, J.P., 2009	Y	U	Y	N	Y	Y	Y
Walsh, A., Albano, H., Jones, D.B., 2008	Y	Y	N	Y	N	N	Y
%	91.30	30.43	34.78	77.27	43.48	52.17	40.91

Table 2: Number of papers included and excluded

Number of papers included	Number of papers excluded
23	0

Results of meta-synthesis of textual data based on opinion

Meta-synthesis of textual data based on narrative and opinion generated three synthesized conclusions (Level 3). These were derived from 82 publication conclusions (Level 1) that were subsequently aggregated into nine categories (Level 2).

Synthesized conclusion 1: Safe, meaningful and appropriate care of severely obese patients undergoing bariatric surgery may be delivered if staff in each role within the MDT achieve a minimum set of competencies

This synthesis assembled the conclusions from each individual paper providing information on competencies for one or more workforce group in the MDT for bariatric surgery. Initially, key groups of interest were specialist bariatric surgeon, specialist bariatric nurse, specialist bariatric dietitian, psychologist and/or psychiatrist. Papers included in the review covered competencies for nurses, surgeons, psychologists and mental health practitioners and also amalgamated competencies for other workforces in the MDT, for example, anaesthetists. In this synthesis, competencies for each workforce are categorised separately (see below). However, some papers discuss competencies for the MDT as a whole and these are also included in this category. As indicated previously, no papers or studies were found providing information on competencies for dietitians in bariatric surgery services.

Category 1: Competencies for care of bariatric surgery patients for nurses to achieve

Conclusions included in Category 1 are relevant to both undergraduate nurses in education, and trained nurses working in bariatric surgery units. When designing undergraduate curricula for student nurses or educational programs for practising nurses, a range of topics may be included to enable development of competencies in caring for patients before, during and after bariatric surgery, and in promoting patient safety. A key concern for authors of papers included in this category is promoting the understanding of the principles of sensitive communication with severely obese people.

Conclusion 1: Nurses should have an all-round knowledge of bariatric surgery (C)

Core curriculum should cover the physiological and psychological effects of severe obesity, associated co-morbidities, surgical options, and the benefits and risks of surgery (p268).²³

Conclusion 2: Competency in psychological assessment and sensitive care is required for bariatric nurses (C)

Educational in-service sessions should be made available to increase understanding of obesity-related psychological issues and promote awareness of intended or unintended bias (e.g. groans during transport) (p268).²³

Conclusion 3: Obesity can be a stigmatizing disease and obese people can be misperceived by clinicians. Student nurses should have opportunities to explore their feelings and perceptions (C)

Students' feelings and perceptions regarding obesity should be explored, and theories that explain the complex pathogenesis of obesity should be proffered, much in the same way that students tend to be taught about alcoholism and addictive disorders (p118). Students should be encouraged to examine their own beliefs and attitudes toward obesity so that they can move beyond any pre-existing prejudices or misperceptions and deliver the best care to patients diagnosed with obesity (p124).²¹

Conclusion 4: Nurses should develop competency focusing on providing safe, effective and respectful care to patients after bariatric surgery (C)

Provide psychological support: conveying empathy, understanding and respect; using eye contact and appropriate touch; speaking to patients in a sensitive and non-judgemental manner (p297).²⁸

Conclusion 5: Aspects of focus for bariatric nursing education are multi-factorial (C)

Parameters for education in the care of the bariatric surgical patient include recognition of morbid obesity as a chronic illness with associated co-morbidities, cultural sensitivity, and use of size appropriate equipment (p404).²⁹

Conclusion 6: Nursing students should be taught how to deliver high quality care to bariatric surgery patients (C)

Nursing students must learn key concepts and theories of obesity and the principles that guide its treatments within a disease management framework (p118).²¹

Conclusion 7: A range of key skills may be taught to student nurses using a structured approach to prepare them for caring for bariatric surgery patients (C)

Pathophysiological principles, risk factors, clinical manifestations, assessment and diagnostic findings for the obese patient should all be addressed within the nursing process framework (p118).²¹

Conclusion 8: Student nurses should understand types of bariatric procedures, their complications and follow-up care (C)

A basic understanding of common bariatric surgeries, complications and aftercare would also be a necessary learning objective (p260).³⁰

Conclusion 9: Patient and staff safety is a key consideration in bariatric surgical nursing care and nursing staff should be trained to use patient handling equipment (C)

On units where specialized lifting equipment is in place, staff should be educated in its safe and regular use (p897).²⁴

Conclusion 10: Safe handling of severely overweight patients is essential from the nurse's and the patient's perspective (C)

Nurses should be able to demonstrate skill and knowledge in the use of special equipment for patients with severe obesity (p268).²³

Conclusion 11: Nurses need to develop competency in the complete assessment of obese patients (C)

A course in comprehensive health assessment should include detailed history-taking skills related to obesity, including diet, exercise, weight loss attempts, family history, genetic conditions, medications,

and psychosocial factors. In addition, students should understand the use of and limitations of BMI and waist circumference as a measure of obesity. Students must understand physical findings associated with primary and secondary obesity. Knowledge of ongoing research will help the student understand the basic science foundation of this disease (p65).²⁶

Conclusion 12: Bariatric patients can have respiratory difficulties under anesthetic; therefore, anesthetic nurses should have knowledge of the physiological changes in obesity (C)

Peri-anesthesia nurses must be knowledgeable in the pulmonary pathophysiology of obesity (p896).²⁴

Conclusion 13: Nurses should develop competencies focused on safe recovery of patients after bariatric surgery (C)

1. Monitors patients for adverse effects of bariatric surgery associated with increased mortality: pulmonary embolism and anastomotic leaks.
2. Monitors patients for common postoperative complications of bariatric surgery: nausea and vomiting, dumping syndrome, nutritional deficiencies, dehydration, bowel obstruction, strictures, erosions, wound infections, ulcers, adhesions, internal and incisional hernias, and cholelithiasis
3. Identifies patient attributes that have been found to contribute to increased mortality and monitor these patients closely: advanced patient age, male sex, severe obesity (BMI \geq 50), co-existing conditions (p297).²⁸

Conclusion 14: Educating nurses about follow-up care for bariatric surgery patients is necessary (C)

Nurses should be knowledgeable about possible late complications, how to support patients, and how to make referrals to appropriate caregivers (p899).²⁴

Conclusion 15: The knowledge and competencies required to provide high quality gastric band care relate to anatomy and physiology, assessment of severely obese individuals, practical skills, monitoring and patient/family education (C)

The registered nurse's education/training and demonstrated competence should include, but is not limited to, the following: a) Gastrointestinal anatomy and physiology; b) Indications, contraindications, potential complications and maintenance considerations related to various surgically-placed gastric banding systems; c) Skill in locating and accessing gastric band system ports with required needles/devices; d) Nursing needs specific to bariatric clients; and e) Nursing responsibilities, including, but not limited to: observation and monitoring of client's gastrointestinal functions and other parameters, and applicable teaching for patients, family or significant other specific to the client and the gastric banding system utilized (p16).²⁵

Overall, this review brings together some key aspects of nursing care for bariatric surgery patients and indicates areas for development of knowledge and understanding as well as competencies required for the practical application of theoretical concepts in the field. However, what is available in the literature is limited and cannot be assumed to comprehensively cover all aspects of care. In addition, the topics covered are provided with little supporting evidence and are generated from experience rather than research in the field.

Category 2: Competencies for care of bariatric surgery patients for surgeons to achieve

Three papers give opinions on competencies and skills required by surgeons to be proficient in bariatric surgical procedures, patient preparation and follow-up. In the early years of bariatric surgery surgeons developed their skills *on the job*. However, this is no longer adequate preparation³¹, and papers reviewed advocate surgeons have related experience and join a recognized training program for development of laparoscopic skills and specializing in bariatric surgery. A range of fellowship and mini-fellowship programs are available and surgeons are encouraged to join a suitable program. Surgeons must also maintain up-to-date knowledge of bariatric surgery.

Conclusion 16: It is no longer adequate for surgeons to learn bariatric skills on the job (C)

Increasingly rare are surgeons who attempt laparoscopic bariatric surgery with no formal training. In the current environment a more professional approach is encouraged (p59).³¹

Conclusion 17: A practising bariatric surgeon should be a qualified gastrointestinal (GI) surgeon who has completed a GI surgery training program (C)

The minimum standard for a bariatric surgeon is to be a fully-trained, qualified, certified general or gastrointestinal surgeon who has completed a recognized general/gastrointestinal surgery program (p86).¹⁹

Conclusion 18: Mini-fellowships and proctorships are recommended (C)

Mini-fellowship: week long mini-fellowships usually include attendance at pre-operative and postoperative clinics, animate and inanimate skills laboratory experience, as well as observation of laparoscopic bariatric surgery. The one-week intensive courses recommend that the entire bariatric team participate, including: the primary general surgeon, operating room first assistant, bariatric program coordinator, and other operating room staff. With proctorships, an experienced bariatric surgeon observes the first several cases of a surgeon beginning his bariatric practice (p59).³¹

Conclusion 19: Minimally invasive surgery/bariatric fellowships may provide optimal training (C)

Minimally invasive surgery/bariatric fellowship: The vast majority are oneyear programs; however, a growing number of two year programs exist that include a year of research. Currently no official guidelines that concern caseloads and fellow requirements are available. Most fellows participate in the preoperative, intraoperative, and follow-up care of approximately 250 laparoscopic patients (p59).³¹

Conclusion 20: Mini-fellowships are a way to educate surgeons and should include clinic, preoperative, perioperative and postoperative experiences (C)

Mini-fellowships range from four-day programs without an operative component to a three- to six-month experience as an integrated surgical fellow experience. Week-long mini-fellowships usually include attendance at preoperative and postoperative clinics and animate and inanimate skills laboratories. Participants often observe several laparoscopic bariatric operations (p810).³²

Conclusion 21: Formal courses for trainee surgeons should be taught by experienced instructors, and include taught and practical components (C)

The course should be taught by instructors with appropriate clinical experience, and have a curriculum that includes didactic instruction as well as hands-on experience using inanimate and/or animate models. A formal course alone is not sufficient training to begin performing bariatric surgery independently (p59).³¹

Conclusion 22: A range of topics for surgeon education include epidemiology, physiology, assessment, operative management and monitoring for complications (C)

Topics covered may include epidemiology, history, physiology, preoperative evaluation, psychological assessment, postoperative management, restrictive and malabsorptive procedures, revisional surgery, managing postoperative complications, nutritional deficiencies, and outcomes (p811).³²

Conclusion 23: The bariatric surgeon should have completed a preceptorship program (C)

The surgeon has completed a preceptorship in all aspects of bariatric surgery including patient education, support groups, operative techniques and post-operative follow-up with an International Federation for the Surgery of Obesity (IFSO) or an IFSO-adhering-body-designated bariatric surgeon or one who has performed at least 200 bariatric surgical procedures and has five or more years of experience in the field of bariatric surgery (p86).¹⁹

Conclusion 24: The bariatric surgeon must maintain up to date knowledge (C)

The bariatric surgeon maintains a well-informed, up-to-date knowledge of bariatrics and bariatric surgery literature such as contained in the Journal Obesity Surgery (p86).¹⁹

Category 3: Competencies for care of bariatric surgery patients for psychologists or other mental health professionals to achieve

Psychological assessment is a key component of holistic and long term care of patients who are having bariatric surgery. The two papers reviewed in this section recommend employment of a psychologist or mental health professional in bariatric surgery units with a minimum level and kind of experience in assessment. Preoperative assessment in bariatric surgery takes into consideration the long term outlook for the patient, and psychologists need to understand risk factors for poor outcomes and predict inability to cope with the effects of surgery. Certain factors like substance abuse, mood, eating behavior and social support may influence long term prospects. In addition, mental health assessors or psychologists should maintain knowledge of procedures and their significance for patients postoperatively and be able to develop self-management strategies for patients to enhance adherence to treatment guidelines.

Conclusion 25: Psychological assessment of bariatric surgery patients requires a minimum level of relevant experience (C)

The American Society for Bariatric Surgery (ASBS) believes that the application and interpretation of objective psychological tests, the ability to identify discrete risk factors not amenable to testing, as well as the capacity to conduct pertinent clinical interviews and to organize this information in a way that directly speaks to the adjustment of the individual after surgery, require a particular level and kind of experience that is specific to bariatric surgery (p15).³³

Conclusion 26: Psychologists should have knowledge of minimum standards for bariatric

surgery and understanding of how psychological and physical components interact (C)

The minimum standards of this specialty include a basic working knowledge of the nature and mechanics of bariatric surgical procedures and their postoperative course, the physiological effects of morbid obesity and dieting, as well as a basic knowledge of the psychology of eating and morbid obesity. Furthermore, an understanding of the complexity with which these factors combine, interact and manifest in the postoperative patient is also essential (p15).³³

Conclusion 27: The mental health practitioner (MHP) in bariatric surgery should bring to the role knowledge of mental health and psychological pathologies, their treatment, peoples' coping styles and other issues like sexual abuse (C)

Exploring a history of abuse, psychiatric treatment, psychotropic medications, coping styles, depression and suicidal behavior can yield a wealth of information regarding the probability of patients making the dramatic postoperative changes that bariatric surgery requires.³⁴

Conclusion 28: The MHP in bariatric surgery should be knowledgeable about the procedures undertaken and their significance for patients postoperatively (C)

Knowledge about the surgery and postoperative expectations for lifestyle and nutritional changes can ensure a more comprehensive evaluation by the MHP. With knowledge of the surgery, the MHP should be able to evaluate the patient's responses to ensure that the patient is truly making an informed decision, has realistic expectations for the postoperative outcome, and is motivated to make the necessary lifestyle and nutritional changes for postoperative success.³⁴

Conclusion 29: The evaluator (psychologist) should understand vulnerabilities and risk factors that determine the patient's ability to cope with life-changing surgery (C)

This specialization should include a thorough understanding of the psychosocial, financial and physical stresses imposed on the patient who has morbid obesity and current views on how certain psychosocial factors (e.g. mood, substance abuse, personal abuse or victimization, eating behavior and social support) may affect surgical outcomes (p15).³³(Le Mont, et al. 2004)

Conclusion 30: Psychologists should be able to develop self-management strategies for patients to enhance adherence to treatment guidelines (C)

Psychologist should work with patients to develop strategies to enhance adherence to treatment (self-management) guidelines over the long-term course of postoperative care, to prevent relapses, and to teach or facilitate life skills associated with using the surgical pouch and managing the disease of morbid obesity (e.g., modulating emotions, pacing oneself, and limit-setting) (p15).³³

Conclusion 31: Evaluating surgeons should hold a professional license (C)

Being licensed authorizes surgeons to formulate a clinical diagnosis according to DSM-IV¹ criteria. Additionally their license should authorize them to conduct psychological evaluations, perform psychotherapy or counselling of adults with an Axis I or Axis II clinical diagnosis or other psychological conditions that may be a focus of clinical attention as outlined in the DSM-IV, and administer and interpret psychological tests (p15).³³

¹ Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition <http://allpsych.com/disorders/dsm.html>

Category 4: Competencies for care of bariatric surgery patients for other multidisciplinary team members to achieve

This category provides information relevant to the skills and competencies required for members of the MDT outside the roles described in the previous three sections. Specific details are provided for particular roles in some included articles, for example, anaesthetists. In other articles information presented is relevant to a range of roles within the MDT. Seven papers were reviewed and included in this section.

Anaesthetists are the focus of a paper by Wadhwa³⁵ in which the authors outlined a range of knowledge and skills required for competent care of the bariatric surgery patient with complex needs.

Conclusion 32: Anaesthetists caring for bariatric patients need to have competent medical knowledge of anatomy, physiology and pharmacological differences attributable to severe and complex obesity (C)

Anaesthetists need to learn pathophysiology of obesity and obstructive sleep apnoea,; differences between body weight scales and their use for pharmacokinetic and pharmacodynamic differences in the morbidly obese (p9).³⁵

Conclusion 33: Anaesthetists should develop skills in airway management, patient positioning, regional anaesthesia and analgesia appropriate to the bariatric patient (C)

Anaesthetists need to learn pre-oxygenation and effective airway management, proper positioning to avoid skin breakdown, rhabdomyolysis and peripheral nerve injury, regional anaesthesia and analgesia, and concepts of non-narcotic multimodal analgesia (p9).³⁵

Conclusion 34: Anaesthetists should have awareness of the complex needs of bariatric patients regarding their care (C)

Anaesthetists need to improve system-based awareness of issues of obese patients in the perioperative period such as adequate sized beds, and transport and moving issues (p9).³⁵

Conclusion 35: Anaesthetists should develop a sensitive approach to interactions with obese individuals

Anaesthetists need to develop compassion for morbidly obese patients and demonstrate and expect sensitivity from the team (p9).³⁵

Conclusion 36: Anaesthetists should develop skill in multidisciplinary team communication

Anaesthetists need to develop skills in communication with the preoperative team about adequate IV access, with the intraoperative team about positioning issues, and with the surgical team regarding concerns such as deep vein thrombosis (p9).³⁵

More generally, a range of skills and competencies were identified for multi-disciplinary team members including patient safety, moving and handling, knowledge of health problems for severely obese patients, sensitive care, ethical care, understanding complications of bariatric surgery, and identification of changes in a patient's condition.

Conclusion 37: There are key roles to develop within a successful MDT (C)

Multidisciplinary care is generally considered essential in the management of clinically complex and

high-risk weight loss surgery (WLS) patients. Such care involves the creation of a WLS team with a dedicated and appropriately credentialed director. It also includes appropriately trained surgical, medical, psychiatric and nursing personnel. Such staffing is now required by both the American College of Surgeons (ACS) as well as the American Society for Metabolic and Bariatric Surgery (ASMBS) (p912).³⁶

Conclusion 38: The efficacy and safety of bariatric surgery depends on having an educated multidisciplinary team (C)

Staff education and competency is an ongoing priority for bariatric surgery teams (p404).²⁹

Conclusion 39: Multidisciplinary training in perioperative and postoperative care is required (C)

The multidisciplinary care team should be trained in perioperative and postoperative care of the patient receiving bariatric care (pS67).³⁷

Conclusion 40: Staff caring for bariatric surgery patients should be skilled and knowledgeable specifically for the field (C)

Care in the post-anaesthesia care unit, surgical intensive care unit, and medical-surgical care unit requires staff members who are educated about and designated for the care of bariatric patients (p204).²⁰

Conclusion 41: Skills in assessing moving and handling risks are essential (C)

Continuity of care requires that personnel in all areas be aware of a patient's needs related to mobility, equipment weight restrictions, and the need for special equipment (e.g. sleep apnoea equipment) (p61).⁵

Conclusion 42: There is a need to educate emergency department staff, as first points of contact, about latent complications of bariatric surgery (C)

Complications may occur after discharge, necessitating evaluation in the emergency department. The emergency department staff must be knowledgeable about early and late complications related to WLS surgery. Particular attention must be paid to tachycardia, as this can be a sign of anastomotic leak or dehydration (p896).²⁴

Conclusion 43: Multidisciplinary team members need to be able to identify signs of complications post bariatric surgery (C)

Educating team members in identifying factors that increase the patient's risk for complications (e.g. airway, hemorrhage, leak, fluid and electrolyte imbalance) (p62).⁵

Conclusion 44: Aspects of training for the MDT are patient safety, sensitivity and communication skills (C)

Team training that includes hospital and unit-specific education programs on patient safety, sensitivity, and communication skills are essential (p63).⁵

Conclusion 45: Prejudicial attitudes are detrimental to good care of severely obese patients: therefore training for the MDT that includes sensitive care is appropriate (C)

Obese patients continue to experience significant societal stigma, and this can prevent them from obtaining appropriate care for their obesity or medical conditions. An environment free of prejudicial attitudes toward obese patients is a critical component of a treating facility, and an important requirement in providing care. All staff members who interact with obese patients need to undergo such training, including nonclinical personnel in areas such as transport or administration (p912).³⁶

Conclusion 46: Understanding when colleagues' knowledge and skills are required to provide optimal care is a key competency (C)

Professionalism demands the acquisition of competencies that will foster equitable negotiation in patient care, furthering healthcare effectiveness. Another duty is delegation of tasks to the appropriate healthcare personnel, and this requires knowledge of self and of others. Delegation when working within inter-professional teams requires knowledge of various professional scopes of practice. As mentioned previously, the complexity of bariatric populations and accompanying comorbidities already require a team approach, so knowing the scope of those on the team is vital to safe and effective delegation (p95).³⁸

This synthesis has provided a range of competencies and skills needed to provide care to bariatric surgery patients. Some give generalized indication of topics for learning while others provide specific direction for the education and training of staff in particular roles. The preparation of bariatric surgery nurses is fairly well covered in the papers reviewed. However, other key roles like that of the surgeon and the bariatric dietitian or nutritionist are less prominent in the literature or not represented at all. Strong topics for inclusion in a bariatric surgery education program include sensitive care, moving and handling, identification of complications, understanding operative procedures and psychosocial aspects of living with severe obesity and undergoing surgery.

Synthesized conclusion 2: Safe, effective and meaningful care for bariatric surgery patients may require a minimum set of competencies for managing a bariatric surgery unit and MDT

The role of management and coordination of the bariatric surgery unit requires a suitably experienced and educated team member. Running a high quality service also requires a range of operational structures and provisions. Categories assembled to form the synthesis specifically explored competencies required for management of a service, and requirements for the organizational structure to support operation of a bariatric service.

Category 5: Required competencies for managing the MDT in bariatric surgery

Four papers are included in this section and outline skills and competencies required for managing and coordinating a bariatric service. Papers reviewed indicate a senior nurse operating as a clinical nurse specialist (CNS) or nurse practitioner with particular expertise would be suitable for the role of bariatric programme co-ordinator.

Conclusion 47: Core competencies for the CNS in bariatric surgery include expertise in clinical care, consultation, professional guidance, leadership and collaboration (C)

The core competencies of expert clinical practice, consultation, expert guidance, and both clinical and professional leadership, as well as collaboration, allow a CNS to function ideally as the leader of an interdisciplinary team with the desired outcome of enhanced patient care.³⁹

Conclusion 48; The bariatric program coordinator (CNS) requires leadership skills and clinical expertise (C)

The role of bariatric program coordinator requires skills in team management, education, advocacy, and sound clinical judgment.³⁹

Conclusion 49; Bariatric surgery related management should be part of education for nurse practitioners caring for obese patients (C)

The student should understand that risk for abdominal and gastrointestinal-related complications of bariatric surgery may present after the immediate postop period. They should also understand the anatomical changes associated with bariatric surgery and how these influence medical management, specifically those related to procedures (p66).²⁶

Conclusion 50: A range of topics related to surgical management are recommended for educating nurse practitioners (C)

Topics for educating nurse practitioners include bariatric surgery-related management issues: high-risk procedures (e.g. endotracheal intubation, nasogastric/oral gastric tube placement), postoperative complications (acute and long term), vitamin supplementation, pregnancy, failure to obtain optimal weight loss and/or weight regain (p64).²⁶

In addition to suitably educating nurse practitioners, there is an expectation within the role that the senior nurse coordinates professional development for the MDT.

Conclusion 51: Nurses can coordinate education within the MDT and address key factors related to bariatric surgical care (C)

The nurse promotes multidisciplinary team collaboration by developing and implementing education programs related to the care of the weight loss surgery patient. This collaboration promotes awareness of evidence-based practices and sensitivity to the needs of extremely obese patients (p895).²⁴

Conclusion 52; CNS collaboration may enhance provision of safe care and follow-up for bariatric surgery patients (C)

Development of shared pathways ensures the specialized plan of care is followed and alerts the team to additional individualized needs (p225).⁴⁰

Category 6: Organisational structure for a bariatric surgery service

Three papers are included in this category. In order for a bariatric surgery unit to be successful, a supportive environment, culture and organizational structure within which to operate appears to be essential.

Conclusion 53: The International Federation for the Surgery of Obesity (IFSO) statement on bariatric surgeon qualifications specified that bariatric surgery should only take place where there is adequate provision of staff and equipment (C)

The surgeon performs bariatric surgery in institutions where he/she has made every reasonable effort to obtain equipment, facilities and support systems adequate for the comfort, safety and dignity of bariatric surgery patients.¹⁹

Conclusion 54: Bariatric surgeons should become members of IFSO or another adhering body and each surgeon, prior to the beginning of practice, should have taken an IFSO course or attended an IFSO meeting (C)

Prior to independently performing primary bariatric surgery, each surgeon must meet minimal standards, for example, attendance of at least one meeting of IFSO or one of its adhering bodies, or one of its bariatric surgery courses (p86).¹⁹

This prepares surgeons and underlines the need for being committed to providing lifelong education and follow-up for bariatric surgery patients. Further factors enabling bariatric surgery services to succeed relate to staff and environment.

Conclusion 55: Outcomes for the development of a bariatric surgery program include nursing competency and site survey (C)

There were two desired outcomes: a) nursing staff demonstrating competency within the clinical setting and the ability to discuss the care of the bariatric surgery patient; and b) a successful site survey, which would accord the organization the desired designation (p8).²²

Conclusion 56: Patient and staff safety is a key consideration (C)

On units where specialized lifting equipment is in place, staff should be educated in its safe and regular use. A designated peer back injury resource nurse can be designated to coordinate staff and patient education, equipment selection, maintenance, staff training and reporting (p897).²⁴

Synthesized conclusion 3: To enable MDT members to achieve competencies for safe, effective and meaningful care for bariatric surgery patients, certain approaches to education may be developed

The third synthesis in the review presents factors important to the facilitation of education and training for MDT staff caring for bariatric surgery patients. Key factors identified in reviewed papers explored approaches to provision of education and training, and the importance of gaining practical experience in the field, and provided some indication of how competencies may be assessed.

Category 7: Provision of education and training for MDT members in bariatric surgery

Eight papers in the analysis have conclusions included in this synthesis. Competency based educational programs appear to be beneficial for the development of nurses working in the field of bariatric surgery.

Conclusion 57: Proven competency-based education is required for nurses to provide optimal care to bariatric surgery patients (C)

Competency-based nursing care is essential to ensure the safety of weight loss surgery patients and nursing staff. Those who care for patients with severe obesity should complete a competency-based orientation that enables them to identify potential complications and prevent adverse outcomes (p268).²³

Conclusion 58: Introduction of inter-professional competencies need not be complex and will facilitate measurement of outcomes (C)

Focusing on simple changes in professional educational competencies will help enhance measurement of inter-professional outcomes within bariatric care (p94).³⁸

Conclusion 59: The case study format is a technique used to facilitate active learning in student nurses (C)

One method of active learning that can facilitate critical thinking, problem solving and confidence in clinical practice is the case study format (p118).²¹

Conclusion 60: There are some essential components of a learning package for nurses in the bariatric team (C)

The learning objectives are to: a) outline postoperative care; b) identify potential bariatric surgery complications; c) describe how the organization uses bariatric critical pathways; d) describe ways to provide sensitive health care; and e) identify where to find bariatric equipment manuals. The sections in the module are Post-op Care, Complications, Critical Pathways, Sensitivity, Back Safety, Resources, and the Post Test (p7).²²

Conclusion 61: Use of a range of teaching strategies provides students with opportunities to engage and apply skills (C)

Teaching strategies that target the adult learner (e.g. self-guided online learning, role playing, virtual patients, high-fidelity simulators, and objective structured clinical examinations) in addition to traditional didactic instruction can be used to incorporate obesity content into the curriculum. These strategies allow adult gerontology nurse practitioner (AGNP) students the opportunity to engage and apply psychosocial skills (e.g. difficult conversations and counselling techniques), psychomotor skills (e.g. central line insertion), and critical thinking skills (e.g. ventilatory management) to the care of overweight and obese patients in a non-threatening, safe environment (p66).²⁶

Conclusion 62: Skills training in the simulation centre provides technical experience and facilitates proficiency assessment and validation (C)

Staff will benefit from using a simulation and skills training center that provides hands-on proficiency and technical training (p63).⁵

Simulation centres may be used to train members of the MDT in safe use of bariatric lifting equipment. This may be supplemented with online resources and a trained link person for the bariatric surgery unit.

Conclusion 63: Online resources and a trained link person for each unit should be available to prepare nursing staff for safe use of bariatric equipment (C)

Representatives from bariatric bed, transfer device, and lift companies provide an eight-hour in-service education day with demonstration and return demonstration for selected equipment used in each unit (p4). Objectives listed on a check off sheet (p6).²²

Conclusion 64: Computer based training for sensitive practice may not be ideal (C)

Initial difficulties locating materials on the internet are identified. For the future, one potential improvement is a software augmentation to build interactive modules that allow users to enter data or commands during a learning session to enhance learning. It may be beneficial to incorporate these

concepts into preceptor training, placing emphasis on role modelling of acceptable attitudes and using peer pressure to shape behavior (p9).²²

Conclusion 65: Implementation of the educational program begins when new nurses (trained and untrained) are orientated to the bariatric surgery unit

An observed performance format for bariatric nursing is initiated during clinical orientation. Critical aspects for safe passage of the bariatric surgery patient are identified and integrated into the unit-specific nursing orientation (p4).²²

Conclusion 66: Evidence of commitment should include ongoing in-service education programs in adolescent bariatric surgery and regular administrative review of the program (C)

This requirement refers to a culture in which staff are prepared to manage morbidly obese adolescent patients with understanding and compassion, and to appreciate the medical and psychosocial comorbidities of the disease in this population. The staff should be aware of the basic concepts of bariatric surgery through in-service programs. Direct caregivers should be able to recognize the early signs of common clinical complications (e.g. pulmonary embolus, anastomotic leak, infection, bowel obstruction, and other specific device- or procedure-related complications) so that they can be managed promptly (pS67).³⁷

Surgeon training in bariatric surgery is complex and there may be a range of approaches. It appears that surgeons should select a training program suitable for them, but with certain key components. The completion of an accredited training program which provides trainees with practical experience proctored by an experienced surgeon is recommended by authors of papers included in the review. The types of programs available were covered in Category 2 of this review, and the papers reviewed identified minimally invasive fellowships as providing optimal preparation. Some further detail is provided below regarding provision of education for surgeons engaged in bariatric surgery for adolescents.

Conclusion 67: Accredited training is recommended for bariatric surgeons (C)

The surgeon-training requirement could be satisfied by completion of bariatric coursework from relevant professional organizations that offer training in bariatric care (e.g. ASMBS and ACS), co-surgeon experience, and/or proctoring of the initial case series by an experienced bariatric surgeon (pS66).³⁷

Conclusion 68: In nursing, accredited courses in care of the bariatric surgery patient are poorly developed (C)

At this time, there is no specific national certification for nurses who specialize in the care of patients undergoing weight loss surgery. Institutions should provide opportunities for ongoing nursing education to advance and maintain specialized knowledge in the care of severely obese weight loss surgery patients (p272).²³

Category 8: Assessment of competencies

A key part of competency-based staff development programs is the assessment of knowledge, understanding and clinical skills. This category examines the way programs outlined above are

assessed to ensure validity and reliability. Six papers are included in the category.

Conclusion 69: A continuum from least reliable (self report) competency assessment method to most reliable (observe actual behavior) is desirable (C)

Preceptors and managers should adjust competency assessment methods and verification to ensure reliable and valid evaluation of actual clinical performance (p298).²⁸

Conclusion 70: A valid and reliable approach to competency assessment depends less on written responses than on observed actions (C)

Being knowledgeable in an area is not equivalent to being clinically competent. Increased reliance on simulations because it requires the staff to actually perform as expected. Clinical observations are the most valid and reliable means of evaluating if a new nurse can perform in actual patient care situations (p298).²⁸

Conclusion 71: Assessment methods for competencies are observation, simulation, case study and testing (C)

Preceptors for new staff can use a variety of competency assessment methods, such as tests and quizzes, case studies, simulations, peer review, and observations to assess competencies (p297).²⁸

Conclusion 72; Proper and safe use of bariatric equipment is a requirement for bariatric nurses.

An eight-hour in-service education day with demonstration and return demonstration for selected equipment used in each unit is introduced. Specific learning objectives are defined and individualized for each unit or department. The coordinator ensures that all the specific equipment requirements are met for each staff person validating the competency (p7).²²

Competencies may or may not have assessment guidelines. However, competencies should be defined and measurable and where there is guidance the assessor should be clear about which behaviors to look for, and the assessed should know what they are expected to achieve to be competent.

Conclusion 73: Competencies are definable, observable and measurable behaviors, usually described by a number of performance expectations or criteria (C)

Competency assessment checklists can be used to identify behaviors to look for when assessing performance, and for new staff to understand how they should perform (p295).²⁸

Conclusion 74: Acceptable levels of experience for carrying out bariatric surgery should be defined (C)

The surgeon should: a) have privileges to perform open bariatric surgery; b) have privileges to perform advanced laparoscopic surgery; c) document three proctored cases in which the assistant is a fully trained bariatric surgeon; and d) document the outcomes of 15 laparoscopic bariatric surgical cases performed as the primary surgeon, which demonstrate an acceptable perioperative complication rate (p808).³²

Conclusion 75: Specific techniques or competencies for the surgeon to achieve for each procedure should be set in advance (C)

Criteria of competency for each procedure should be established in advance and should include evaluation of: familiarity with instrumentation and equipment, competence in their use, appropriateness of patient selection, clarity of dissection, safety, successful completion of the procedure, technical complications, and documented outcomes (p674).²⁷

Conclusion 76: Proof of surgical ability is required (C)

The surgeon has received a written approval from his/her preceptor of satisfactory bariatric surgical abilities (p86).¹⁹

Conclusion 77; Competency of nurses can be evaluated at the bedside by the preceptor, but can be affected by variability in how competency is observed, interpreted and validated (C)

Criteria are designed to measure knowledge, psychomotor skills, critical thinking and interpersonal skills used during an actual patient encounter, with emphasis on desired outcomes in the practice setting. To limit variability in preceptor competency, preceptors are validated by the CNS or the bariatric coordinator using standardized educational content (p4).²²

Category 9: Skills development through practical experience

Much experience is gained through engagement in the field of bariatric surgery, and practical experience is a key component of educational interventions in bariatric surgery. This category explores practice as part of professional development and includes five articles.

Conclusion 78: Competency-based education focuses on the practitioner using their knowledge to inform care (C)

Competency emphasises a person's actual performance in real life situations as opposed to simple knowledge or having the potential to perform (p295).²⁸

Conclusion 79: Themes for inter-professional competencies are based on teams shared values and ethics, understanding of each other's roles, communicating and working together effectively (C)

Four basic inter-professional competencies: a) shared values and ethics; b) roles and responsibilities (scopes of practice); c) communication; and d) teams and teamwork (p94).³⁸

Conclusion 80: Practical experience of caring for bariatric surgery patients is an essential part of student nurse learning (C)

Practicum experiences for student nurses should include rotations in weight management centres and bariatric services programs, and with support groups (p124).²¹

Conclusion 81: Psychological assessment of bariatric surgery patients requires a minimum level and kind of experience

Experience of such factors as application and interpretation of appropriate psychological tests and clinical interviewing, identification of risk factors for post-op difficulties, and using the information gathered to facilitate individual adjustment after surgery is essential.³³

Conclusion 82: Knowledge should be updated and assessed when new techniques and

technologies are in use (C)

New procedures, techniques, and technology should be explored and knowledge and competency should be assessed via a formalized evaluation and checklist to reinforce safety standards and ensure best practice for better patient outcomes (p64).⁵

The following meta-view of the synthesis statements, categories and conclusions is a pictorial depiction of the narrative, opinion and text syntheses. Appendix VI provides listing of conclusions by paper.

Synthesized conclusions

Conclusion	Category	Synthesised Finding
<p>Bariatric surgeons should become members of IFSO or another adhering body and each surgeon, prior to the beginning of practice, should have taken an IFSO course or has attended an IFSO meeting. (C)</p>	<p>Organizational structure for a bariatric surgery service</p>	<p>Safe, effective and meaningful care for bariatric surgery patients may require a minimum set of competencies for managing a bariatric surgery unit and MDT. Managerial competencies</p>
<p>Outcomes for the development of a bariatric surgery program, include nursing competency and site survey. (C)</p>		
<p>Patient and staff safety is a key consideration in bariatric surgical nursing care and nursing staff should be trained to use patient handling equipment. (C)</p>		
<p>The IFSO statement on bariatric surgeon qualifications states that bariatric surgery should only take place where there is adequate provision of equipment and staff. (C)</p>		
<p>A range of topics related to surgical management are recommended for educating nurse practitioners (C)</p>	<p>Required competencies for managing a MDT in bariatric surgery</p>	<p>Safe, effective and meaningful care for bariatric surgery patients may require a minimum set of competencies for managing a bariatric surgery unit and MDT. (cont.)</p>
<p>Bariatric surgery related management should be part of education for nurse practitioners caring for obese patients. (C)</p>		
<p>CNS collaboration may enhance provision of safe care and follow-up for bariatric surgery patients. (C)</p>		
<p>Core competencies for the CNS include expertise in clinical care, consultation, professional guidance, leadership, collaboration (C)</p>		

Nurses can coordinate education within the multidisciplinary team and address key factors related to bariatric surgical care. (C)

The bariatric program coordinator (CNS) requires leadership skills and clinical expertise. (C)

A range of key skills may be taught to student nurses using a structured approach to prepare them for caring for bariatric surgery patients. (C)

Aspects of focus for bariatric nursing education are multifactorial. (C)

Bariatric patients can have respiratory difficulties under anesthetic; therefore, anaesthetic nurses should have knowledge of pathophysiological changes in obesity. (C)

Competency in psychological assessment and sensitive care is required for bariatric nurses. (C)

Educating nurses about follow up care for bariatric surgery patients is necessary. (C)

Nurses need to develop competency in the complete assessment of obese patients. (C)

Nurses should develop competencies focused on safe recovery of patients after bariatric surgery (C)

Nurses should develop competency focused on providing safe, effective and respectful care to patients after bariatric surgery. (C)

Competencies for care of bariatric surgery patients for nurses to achieve

Safe, meaningful and appropriate care of severely obese patients undergoing bariatric surgery may be delivered if staff in each role within the MDT achieve a minimum set of competencies.
Competencies for MDT including surgeons, nurses and other staff.

Nurses should have an all round knowledge of bariatric surgery. (C)

Nursing students should be taught how to deliver high quality care to bariatric surgery patients. (C)

Obesity can be a stigmatizing disease and obese people can be misperceived by clinicians. Student nurses should have opportunities to explore their feelings and perceptions. (C)

Patient and staff safety is a key consideration in bariatric surgical nursing care and nursing staff should be trained to use patient handling equipment. (C)

Safe handling of severely overweight patients is essential from the nurse's and the patient's perspective. (C)

Student nurses should understand types of bariatric surgery, its complications and follow-up care. (C)

The knowledge and competencies required to provide high quality gastric band care relate to anatomy and physiology, assessment of severely obese individuals, practical skills, monitoring and patient/family education. (C)

Anesthetists caring for bariatric patients need to have competent medical knowledge of anatomy, physiology and pharmacological differences attributable to severe and complex obesity. (C)

Anesthetists should develop a sensitive approach to interactions with obese individuals. (C)

Anesthetists should develop skills in airway management, patient positioning, regional anesthesia and analgesia appropriate to the

Competencies for care of bariatric surgery patients for other multi-disciplinary team members to achieve

Safe, meaningful and appropriate care of severely obese patients undergoing bariatric surgery may be delivered if staff in each role within the MDT achieve a minimum set of competencies. (cont.)

bariatric patient. (C)

Anesthetists should have awareness of the complex needs of bariatric patients regarding their care. (C)

Aspects of training for the MDT are patient safety, sensitivity and communication skills. (C)

MDT members need to be able to identify signs of complications post bariatric surgery. (C)

Multidisciplinary training in perioperative and postoperative care is required. (C)

Prejudicial attitudes are detrimental to good care of severely obese patients; therefore training for MDT that includes sensitive care is appropriate. (C)

Skills in assessing moving and handling risks are essential. (C)

Staff (MDT) caring for bariatric surgery patients should be skilled and knowledgeable specifically for the field. (C)

The efficacy and safety of bariatric surgery depends on having an educated multidisciplinary team (C)

There are key roles to develop within a successful MDT (C)

There is a need to educate emergency department staff, as first points of contact, about latent complications of bariatric surgery. (C)

Understanding when colleagues' knowledge and skills are required to provide optimal care is a key competency. (C)

Evaluating surgeons should hold a professional license. (C)

Psychological assessment of bariatric surgery patients requires a minimum level of relevant experience. (C)

Psychologists should be able to develop self-management strategies for patients to enhance adherence to treatment guidelines. (C)

Psychologists should have knowledge of minimum standards for bariatric surgery and understanding of how psychological and physical components interact. (C)

The evaluator (psychologist) should understand vulnerabilities and risk factors that determine the patient's ability to cope with life-changing surgery. (C)

The mental health practitioner (MHP) in bariatric surgery should be knowledgeable about the procedures undertaken and their significance for patients postoperatively. (C)

The mental health practitioner (MHP) in bariatric surgery should bring to the role knowledge of mental health and psychological pathologies, their treatment, peoples' coping styles and other issues like sexual abuse. (C)

A practising bariatric surgeon should be a qualified GI surgeon who has completed a GI surgery training program. (C)

A range of topics for surgeon education include epidemiology, physiology, assessment, operative management and monitoring for complications. (C)

Formal courses for trainee surgeons should be taught by experienced instructors, and include taught and practical components. (C)

Competencies for care of bariatric surgery patients for psychologists/mental health professionals to achieve

Competencies for care of bariatric surgery patients for surgeons to achieve

Safe, meaningful and appropriate care of severely obese patients undergoing bariatric surgery may be delivered if staff in each role within the MDT achieve a minimum set of competencies. (cont.)

Safe, meaningful and appropriate care of severely obese patients undergoing bariatric surgery may be delivered if staff in each role within the MDT achieve a minimum set of competencies. (cont.)

Mini-fellowships and proctorships are recommended. (C)

Mini-fellowships are one way to educate surgeons and should include clinic, preoperative, perioperative and postoperative experiences. (C)

Minimally invasive surgery/bariatric fellowship may provide optimal training. (C)

No longer adequate for surgeons to learn bariatric skills on the job. (C)

The bariatric surgeon must maintain up-to-date knowledge. (C)

The bariatric surgeon should have completed a preceptorship program. (C)

A continuum from least reliable (self-report) competency assessment method to most reliable (observe actual behavior) is desirable. (C)

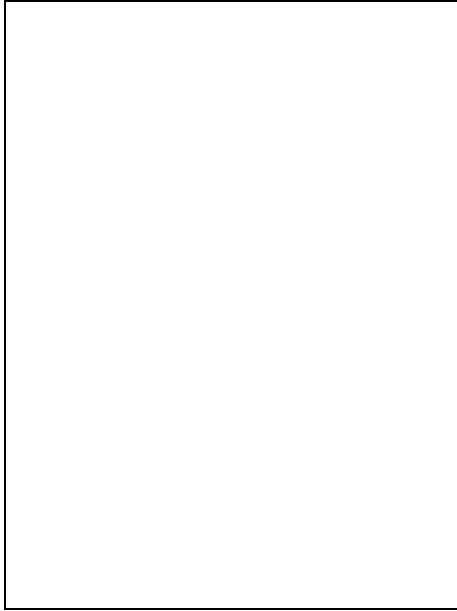
A valid and reliable approach to competency assessment depends less on written responses than observed actions. (C)

Acceptable levels of experience for carrying out bariatric surgery should be defined. (C)

Assessment methods for competencies are observation, simulation, case study and testing. (C)

Competency of nurses evaluated at the bedside by the preceptor, but can be affected by variability in how competency is observed,

Assessment of competencies



To enable MDT members to achieve competencies for safe, effective and meaningful care for bariatric surgery patients certain approaches to education may be developed.

interpreted and validated. (C)

Online resources and a trained link person for each unit should be available to prepare nursing staff for safe use of bariatric equipment. (C)

Proof of surgical ability is required. (C)

Proper and safe use of bariatric equipment is a requirement for bariatric nurses. (C)

Specific techniques or competencies for the surgeon to achieve for each procedure should be set in advance. (C)

Accredited training is recommended for bariatric surgeons. (C)

Computer-based training for sensitive practice may not be ideal. (C)

Evidence of commitment should include ongoing in-service education programs in adolescent bariatric surgery and regular administrative review of the program. (C)

Implementation of the educational program begins when new nurses (trained and untrained) are orientated to the bariatric surgery unit. (C)

In nursing, accredited courses in bariatric nursing are poorly developed. (C)

Introduction of inter-professional competencies need not be complex and will facilitate measurement of outcomes. (C)

Provision of education and training for MDT members in bariatric surgery

To enable MDT members to achieve competencies for safe, effective and meaningful care for bariatric surgery patients certain approaches to education may be developed. (cont.)

Online resources and a trained link person for each unit should be available to prepare nursing staff for safe use of bariatric equipment. (C)

Proven competency-based education is required for nurses to provide optimal care to bariatric surgery patients. (C)

Skills training in the simulation centre provides technical experience and facilitates proficiency assessment and validation. (C)

The case study format is a technique used to facilitate active learning in student nurses. (C)

There are some essential components of a learning package for nurses in the bariatric team. (C)

Use of a range of teaching strategies provides students with opportunities to engage and apply skills. (C)

Competency-based education focuses on the practitioner using their knowledge to inform care. (C)

Knowledge should be updated and assessed when new techniques and technologies are in use. (C)

Practical experience of caring for bariatric surgery patients is an essential part of student nurse learning. (C)

Psychological assessment of bariatric surgery patients requires a minimum level and kind of experience. (C)

Themes for inter-professional competencies are based on teams shared values and ethics, understanding of each other's roles,

Skills development through practical experience

To enable MDT members to achieve competencies for safe, effective and meaningful care for bariatric surgery patients certain approaches to education may be developed. (cont.)

communicating and working together effectively. (C)

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Discussion

The results of the syntheses presented above indicate some key areas where multidisciplinary staff in bariatric surgery units or centres should develop competency: taking a sensitive approach in interactions with severely obese people; pre-operative preparation and assessment of the bariatric surgery patient; knowledge and understanding of procedures carried out; identification of potential complications post operatively; follow-up care for the bariatric surgery patient; and safe moving and handling of bariatric surgery patients. For more senior staff, competencies are in management and coordination of service delivery. In addition, there is a requirement for the environment of care to be adequately resourced and equipped to provide competent bariatric surgery services.

Any member of the MDT in bariatric surgery should be aware of potential sensitivities of obese patients who regularly face stigmatization and discrimination based on their weight,⁴¹ as it is known that weight bias has a negative impact on treatments for obesity.⁴² Caring, compassionate and considerate approaches to people as patients and clients are a key focus for the recent Francis Report and others on NHS service delivery in England. Review of knowledge and skills frameworks should recognize commitment to dignity and respect in patient care.⁴³ Bejciy-Spring⁴⁴ presents the R-E-S-P-E-C-T model as a tool for delivery of sensitive care for bariatric surgery patients: Rapport, Environment, Safety, Privacy, Encouragement, Caring/compassion, Tact. Attentiveness, respectful dialogue and commitment are all part of person-centred care, and Warrington⁴⁵ proposed medical students and doctors practise these in conversations with patients. Papers in the review advocate exploration of personal feelings about obesity as part of study to encourage moving beyond biases.²¹ Increasing understanding of psychosocial factors commonly affecting severely obese people may also encourage positive interactions.²³ Strong leadership as a role model for good practice is currently seen as an effective way to model behaviors and facilitate competent practice.⁴⁶ In the classroom or practice setting, Kleiman⁴⁷ recommends taking a humanistic approach to teaching and competency development that allows students to explore their feelings and to have their ideas respected and that sees favorable effects on patients, colleagues and students themselves.

Psychological preparation of the patient for having bariatric surgery is essential for the long term effectiveness of procedures undertaken. Bariatric units described in the review, in general, employ a psychologist or mental health practitioner as a member of the MDT who works closely with patients in the build-up to surgery taking place. The psychologist is responsible for discussing options with patients, explaining costs and benefits, long term implications, risks, dietary changes necessary and mortality.^{14,48} They will also assess the degree of any emotional, cognitive or behavioral difficulties that may influence outcomes and advise on how to achieve best possible outcomes.⁴¹ People with severe obesity may have higher prevalence of psychological morbidities than those with less concerning BMI.⁴¹ The type of psychological expertise required may provide support to the MDT to deal with psychologically difficult patients, and facilitate behavior change for patients.⁴¹ Le Mont et al.³³ specified areas of expertise and competence and these are centred on psychological testing, clinical interviewing, diagnosing psychological conditions, understanding psychosocial stresses for severely obese people, and directing self-management post surgery.

Bariatric procedures are complex and may require alteration of a patient's anatomy.⁴⁹ Members of the MDT caring for bariatric surgery patients need to have knowledge and understanding of

procedures carried out in order to enable appropriate management before, during and after surgery, i.e. preparation of patients for procedures, support in theatre for the surgical team, pain management postoperatively, and ongoing support for patients in the days, weeks and months afterwards. Berger et al.⁵⁰ carried out a practice analysis which provided a detailed description of the scope of work and knowledge base a bariatric nurse must have to become certified in the USA. There were a range of tasks, 45 in total, rated at least of moderate importance but most rated to be of extremely high importance, with the most frequently performed tasks in the clinical management domain, and least frequently performed in the program administration domain. In addition, 54 areas of knowledge were identified as relevant to bariatric surgery nurses. Examples include: "incidence and prevalence of morbid obesity"; "fundamental principles of weight loss and weight gain"; "anatomic and physiologic changes associated with specific bariatric surgical procedures"; "fluid and electrolyte management of bariatric surgery patients"; and "modalities to improve patient compliance with the postoperative regimen."⁵⁰ (p.405-406) This research study, quantitative in design, was ineligible for the current review but however contained results of relevance to informing understanding of required competencies.

Complications resulting from bariatric surgery may potentially be serious and/or life threatening, for example, hemorrhage, pulmonary embolism, anastomotic leak, and bowel obstruction.²² Knowledge in relation to being able to identify complications of bariatric surgery in the short and long term postoperatively is gained through engagement, as above, in practical care and intellectual development for the MDT member. Assessing what can potentially go wrong and anticipating difficulties are possible through developing extensive knowledge and experience. However, immediate treatment may be necessary in the event of postoperative difficulties. The British Obesity and Metabolic Surgery Society (BOMSS)¹⁰ indicate nursing staff should have documented training in managing and recognizing specific clinical scenarios relating to bariatric surgery patients. Additionally, knowing the patient well and being involved in preoperative preparation over time can enable risk assessment and thinking ahead in terms of anticipating complications.¹⁵

The bariatric surgery team must be committed to the provision of skilled follow-up care for patients post surgery and for the rest of their lives.^{10,19} A key part of surgeon training is follow-up care.³¹ However, ongoing monitoring may be the responsibility of a specialist nurse or other practitioners. As a practitioner gathers experience, then his/her competency to provide a comprehensive monitoring service increases. Particular aspects of competency include: giving dietary information relevant to the bariatric procedure; micronutrient monitoring and supplementation; providing information on support groups, and individualized support to achieve long term weight loss and maintenance.¹⁰

A large number of hospitals providing bariatric surgery services in the UK may be under resourced in terms of moving and handling equipment, and providing staff training relevant to patient and staff safety.¹⁵ The Health and Safety Executive⁵¹ identified that a large proportion (40-70%) of NHS trusts in England do not have a bariatric moving and handling policy, and up to 40% do not provide training additional to general moving and handling training. However, this was not specific to trusts offering bariatric surgery services. Safe moving and handling of bariatric surgery patients is the responsibility of all members of the MDT to ensure patient safety and the safety of themselves and colleagues.²⁴ Training resources may include online courses, provision by equipment manufacturers, and provision by a specified member of the MDT as, for example, a moving and handling link nurse.²² Team training has been shown to reduce numbers of injuries.⁴⁰ To become competent in moving and handling

bariatric surgery patients, training should also include a focus on the holistic care of the individual and appreciation of the complexity of severe obesity. This includes physiological, social and psychological aspects as well as maintaining skin integrity, concerns regarding pressure points, and knowledge of equipment and environmental factors affecting safe handling episodes.⁵² Other features of competency development may be in bariatric risk assessment, pathways of care for bariatric patients, and use of bariatric equipment.

Development of competencies within the MDT to confidently provide holistic care to individuals from first point of contact with the service to, in most cases, the end of their lives, requires planning, resourcing and leadership. As well as leading surgeons, many facilities employ a member of staff in a management and coordination role, and in many cases this is a senior nurse³⁹ or another practitioner. Practitioners in these roles will have a significant amount of practical experience of caring for bariatric surgery patients, and have developed a specialist interest in the area. Expert guidance, consultation, leadership and collaboration may be key features of the role and competencies required to be effective in the role.³⁹ Expertise in surgical treatment, monitoring and follow-up will also require experience and competence in order to practise autonomously.²⁶ The domains rated moderately or highly important for optimal patient outcomes to be achieved in the practice analysis were clinical management, multidisciplinary team collaboration, and program administration and are relevant to these kinds of managerial roles.⁵⁰ Specialist practitioner courses exist but may not cover all aspects of bariatric surgery care. There may be a need for development of relevant educational intervention at this level, informed by the example of the Certified Bariatric Nurse (CBN) course available in the USA.⁵⁰

Papers included in the review support development of competency based educational interventions for bariatric surgery. Suggestions were made for the content of such initiatives, as detailed above. Use of simulation in education may be a valuable resource to facilitate gaining practical experience for the MDT. For surgeons, use of virtual reality (VR) models means they are getting vital experience and improving techniques without detrimental effects on patients. Teaching advanced skills required for bariatric surgery on VR simulation models is a developing field with equipment becoming gradually more sophisticated. However, they may lack validity in terms of assessment of skills and a mix of cadaver and VR models are currently optimal.⁵³ In nursing, possibilities for educating student nurses using simulation are also being explored and expanded.⁵⁴ When developing competency-based education and training it is imperative that assessment and evaluation strategies are built into course outlines in the planning stage. Ongoing development and improvement can then take place, providing courses best suited to the needs of the MDT in bariatric surgery and the bariatric patient population. The design of modules or courses for MDT members to enable development and expansion of roles appears to be necessary. In this way, surgical teams may encompass the technical abilities and caring concerns to enable provision of holistic long term care for the severely obese person undergoing bariatric surgery.

The review has attempted to gather evidence regarding competencies required for MDT staff in bariatric surgery teams. By carrying out the review the lack of primary research on the topic has become apparent, as well as the lack of clear and specific information about competencies. In particular, no information was found to guide competency development for dieticians or nutritional specialists in bariatric surgery, when clinical services depend heavily on their knowledge and

expertise. Databases searched led to a range of text and opinion papers. Should the review have specifically searched for text and opinion, more studies eligible for inclusion may have been found. The short time period given for the review precluded further searching and analysis.

Conclusion

The review indicates the evidence base related to competencies and skills required by members of a multidisciplinary bariatric care team to provide safe, meaningful and appropriate care for severely obese patients undergoing bariatric surgery is poorly developed. All included articles originated in the USA and were low quality text and opinion type pieces. As such, they constitute weak pieces of evidence and should be interpreted with caution. All implications for practice derived from this review and listed below, are graded as weak (Grade B). However, included articles give some broad indication of topic areas in which to develop competency-based education, both role specific and multidisciplinary. Sensitive care for severely obese patients, preoperative psychological assessment, postoperative care and identification of complications, and team management in bariatric services may be areas for educational interventions. Consensus between practitioners is required to take forward strategies for competency development.

Implications for practice

- 1) Required competencies for nursing roles in bariatric surgery are in the domains of: taking a sensitive approach to severely obese people; pre-operative preparation and assessment; knowledge and understanding of procedures; identification of postoperative complications; follow-up care; and safe moving and handling. Grade of recommendation: B
- 2) Required competencies for bariatric surgeons are in the same domains as 1) above, and include specialized skills in: operative techniques including minimally invasive surgery, preoperative evaluation, postoperative management including lifelong monitoring, and managing complications. Grade of recommendation: B
- 3) Required competencies for psychologists/mental health practitioners are in the same domains as 1) above, and include skills in preoperative psychological assessment, identification of risk factors for poor outcome, understanding of the interaction between physical and psychological factors, knowledge of the meaning of procedures for patients, and self-management strategies. Grade of recommendation: B
- 4) Required competencies for a MDT in bariatric surgery are in the same domains as 1) above, and include competencies for particular roles, for example, anesthetists including airway management, positioning, anesthesia techniques and analgesia for severely obese patients. Grade of recommendation: B
- 5) Management and coordination of bariatric surgery services requires practitioners show competencies as experts in clinical practice, as team leaders, as consultants, in team management, education, advocacy and collaboration. Grade of recommendation: B
- 6) Education for the MDT should employ a range of strategies, for example, online modules, role play, and simulation. Grade of recommendation: B
- 7) Accredited courses for surgeons and nurses should be developed. Grade of recommendation: B
- 8) Practical experience should be part of an educational program for all members of the MDT. Grade of recommendation: B

- 9) Implementation of inter-professional education in bariatric surgery will assist communication and working together. Grade of recommendation: B

Implications for research

As identified above, there are significant gaps in knowledge regarding required competencies in the MDT for caring for patients undergoing bariatric surgery. To address gaps research of the following nature may be beneficial:

- 1) Mixed methods research to determine best practice competencies for care of the patient undergoing bariatric surgery.
- 2) Mixed methods research to obtain consensus from practitioners as to which competencies identified in the review can be established as good examples on which to build educational resources.
- 3) Evaluation research to determine the effectiveness of existing programmes of education and professional development for the bariatric surgery team.
- 4) Evaluation research to determine the effectiveness of education and training in bariatric surgical care provided by higher education institutions, colleges and health care organisations for the different workforces in the MDT.
- 5) Research to compare effectiveness of educational interventions, for example, trials of simulation versus online education. Subgroup analyses to determine effectiveness in different workforces within the MDT.

Conflict of interest

There are no conflicts of interest regarding this systematic review.

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Appendix I: Search strategy

CINHAL

1. bariatric or bariatric surgery
2. competenc* or skill* or care
3. nurs*
4. qualitative and interview* or focus group
5. policy or standards or guidelines

The same search strategy was employed for the other workforces: surgeon, dietitian or dietician, anesthetist or anaesthetist, psychologist, psychiatrist, metabolic physician, radiographer, physiotherapist, multidisciplinary

Appendix II: Appraisal instrument

NOTARI appraisal instrument

JBI Critical Appraisal Checklist for Narrative, Expert opinion & text

Reviewer Date

Author Year Record Number

	Yes	No	Unclear	Not Applicable
1. Is the source of the opinion clearly identified?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Does the source of the opinion have standing in the field of expertise?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Are the interests of patients/clients the central focus of the opinion?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Is the opinion's basis in logic/ experience clearly argued?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the argument developed analytical?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Is there reference to the extant literature/evidence and any incongruency with it logically defended?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Is the opinion supported by peers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Overall appraisal: Include Exclude Seek further info

Comments (Including reason for exclusion)

Appendix III: Data extraction instrument

NOTARI data extraction instrument

JBI Data Extraction for Narrative, Expert opinion & text

Reviewer Date

Author Year Record Number

Study Description

Type of Text:

Those Represented:

Stated Allegiance/ Position:

Setting

Geographical

Cultural

Logic of Argument

Data analysis

Authors Conclusions

Reviewers Comments

Data Extraction Complete

Yes

No

Appendix IV: Studies selected for retrieval

American Society for Metabolic and Bariatric Surgery. Certified Bariatric Nurse (CBN) Certified Examination: 2013 Candidate Handbook. Gainesville: American Society for Metabolic and Bariatric Surgery; 2012.

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Appendix V: Characteristics of included papers

NOTARI

Paper	Those represented	Stated allegiance/position	Author's conclusion	Reviewer's conclusion	Notes
[34], Bradley, C., 2007	Mental health practitioners (MHP)	Skills and knowledge in psychiatric and psychological pathology, medication use, and coping styles augmented with understanding of bariatric procedures and postoperative changes to nutritional needs and lifestyle make the MHP a vital member of the bariatric surgery MDT. Assessment can ensure the patient has realistic expectations of the surgery, and is motivated to make changes post operatively.	A skilled and knowledgeable MHP is vital for the success of a bariatric surgery program. As well as preoperative assessment of a patient's understanding of the procedure, postoperative support can also be provided by the MHP.	The MHP seen as a key part of the bariatric team.	The paper comprehensively describes the role of the MHP in bariatric surgery, and outlines its value as a resource for the patient and the bariatric surgery team.
[27], Clements, R., Saber, A., Teixeira, J., Provost, D., Fanelli, R., Richardson, W., 2011	Bariatric surgeons	A series of steps must be followed by surgeons to achieve bariatric surgery privileges.	The paper provides standards that should apply to all surgeons requesting bariatric privileges. Granting of privileges should not occur through case count alone, and proficiency and outcome measures should also be in use.	The surgeon must have the judgement and training to complete a laparoscopic procedure, and proceed to an open procedure when circumstances dictate.	Guidelines to facilitate training in bariatric surgery providing recommendations for experiences to achieve.
[19], Cowan, G.S.M., 1998	Bariatric surgeons	Criteria for performing bariatric procedures independently are provided and based on the understanding that a practising general surgeon will have capability to carry out bariatric surgery. Competence will be greater in those frequently	Guide for bariatric surgeons to promote understanding of what qualifications are acceptable for the international community of bariatric surgeons	Bariatric surgery requires skills in a range of areas: primary experience, knowledge of surgical options, precautions, risks, benefits, possible complication and implications. Recommends about 60 cases with an experienced bariatric	Provides a set of criteria for bariatric surgeons to enable safe and effective practice.

		practising procedures. Precise patient selection and patient education as well as short, intermediate and long-term management strategies are best learnt from an experienced preceptor.		surgeon.	
[38], Greer, A.G., 2012	Multidisciplinary team in bariatric surgery	Bariatric surgery requires collaborative team work, and if team work falls short, patients' long-term health outcomes will suffer. Legislative action is being taken to promote inter-professional education and set standards for competencies.	The publication emphasizes the need for development of collaborative multidisciplinary care for bariatric patients, and promotes understanding of scopes of practice and ethical care provision.	Forward planning and professional engagement in setting legislative and ethical policy that frames education and practice are important to verifying that future bariatric professionals have the competencies needed for inter-professional practice.	The paper provides useful commentary on inter-professional collaborative work in bariatric surgery settings. General suggestions for themes to develop in educating the workforce on essential competencies for high quality care. Knowledge and understanding of each other's roles is essential.
[22], Huseman, S., 2009	Nursing staff in a bariatric surgery unit	Lack of stated competencies for nurses caring for bariatric patients was identified, reviewing the literature and a needs assessment were carried out, and structured educational intervention developed.	The purpose of this article is to describe the creation and implementation of a bariatric competency program for nursing that would meet the standards for a bariatric surgery centre of excellence by the American Society for Bariatric Surgery.	MDT involvement in development of program; program seen as successful, cost effective, expedient and innovative from organizational perspective; proven competencies and tangible outcomes for staff were achieved; highest quality care for patients; the program believed to be transferable to other fields; verification of competency practically achieved.	This appears to be a robustly developed program with content that will inform this review and can be used to facilitate development of a competency framework for bariatric nurses in UK.
[20], Ide, P., Fitzgerald-O'Shea, C., Lautz, D.B., 2013	Multidisciplinary team	Provision of an appropriately staffed and equipped setting for bariatric surgery will promote optimal outcomes in bariatric surgery patients.	The paper provides a run-through of the requirements of a service for performance of high quality bariatric surgical care. Included are requirements regarding costs	The growing severity and complexity of the obesity problem in the USA means hospital departments must plan how they provide patient care. Accreditation programs	Much of the information provided in the paper deals with the physical setting for bariatric surgery and provision of appropriate equipment. There is less with regard to

			of services, availability of appropriate lifting equipment, availability of appropriately trained MDT members and much else.	are provided nationally for staff.	knowledge, understanding and practical skills of staff in the MDT, and what is provided is general and lacking detail.
[40], Johnson, A., Dohlin, E., Severson K., 2009	Staff in a bariatric surgery unit	A collaboration of CNSs developed and implemented a staff development program that led to improved service and designation of the unit as a Centre of Excellence. Education. It included sensitivity training, preoperative and postoperative care of bariatric surgery patients, safe patient handling and equipment training. Training led to improved knowledge and enhanced ability to meet needs of bariatric surgery patients. There were also fewer injuries.	The paper evaluates the efficacy of staff training in a bariatric surgery service.	CNS collaboration successfully improved provision of safe care and effective follow-up for bariatric surgery patients. Specialized care implemented using shared pathways ensured care plan followed and additional needs identified.	Abstract only. Provides evidence of successful implementation of a training program aimed at improving care delivery.
[36], Lautz, D.B., Jiser, M.E., Kelly, J.J., Shikora, S.A., Partridge, S.K., Romanelli, J.R., Cella, R.J., Ryan, J.P. , 2009	Multidisciplinary	Best practice guidelines should regularly be updated to stay abreast of technological developments. The paper provides systematically reviewed evidence for unit requirements.	Systematically reviewing literature to develop best practice guidelines for providing care for bariatric surgery patients in a rapidly developing environment.	Bariatric units must keep up-to-date with technological developments, and in the absence of RCTs in the area, the review provides up-to-date guidance on best practice.	Reviews literature on a range of issues related to bariatric surgery with some information on educational preparation for MDT.
[33], Le Mont, D., Moorehead, M.K., Parish, M.S., Reto, C.S., Ritz, S.J., 2004	Those responsible for psychological assessment (psychologist, behavioral health examiner)	Examines the content of pre-op psychological assessment, objectives and content. Includes behavioral, cognitive and emotional components, history taking and test selection. Contains a section on qualifications of Behavioral	Addresses the content of a preoperative psychological assessment, the role of psychological testing, and the qualifications of the assessing practitioner	Behavioral health an integral part of bariatric surgery approach. Requires a particular level and kind of experience particular to bariatric surgery. Behavioral health as related to bariatric surgery seen as a clinical	Demonstrates how the behavioral health examiner has a key role in bariatric surgery team requiring specific skills. Skills outlined in some detail.

		Health Examiner, including competencies.		speciality.	
[21], Marzen-Groller, K.D., Cheever, K.H., 2010	Nursing students, to prepare them for caring for bariatric surgery patients	The logic is clear, though limited discussion of why a case study approach is used rather than other approaches that may be available.	The paper outlines requirements for nurse education regarding bariatric surgery and presents a case study approach as one way to address educational needs	The authors identify student nurses need to: learn key concepts and theories of obesity and principles that guide its treatments. They suggest this can be done using similar framework to those used to learn about other diseases. Other important factors to learn: pathophysiological principles; risk factors; clinical manifestations; assessment and diagnostic findings for the obese patient. Students' perceptions and feelings about obesity should be explored, along with theories explaining complex pathogenesis of obesity. Indications for bariatric surgery and the care of the bariatric surgical patient should also be part of the curricula. The authors also indicate the need for obesity to be incorporated in other aspects of nurse education: weight lowering medications and effects of other medications on weight in pharmacology courses; the toll of obesity through life span (pediatric, geriatric modules); emotional toll of obesity in mental health courses; co morbid psychological risk factors that may predispose persons to obesity; and social, cultural, economic risks	The paper gives guidance on aspects that should be included in nurse education. However, not covered in any great detail and the main content of the paper presents the case study used at one nursing faculty.

				(community health courses). Practical experiences for students should include weight management centres, bariatric services, support groups. Students must also be encouraged to examine their beliefs about obesity to move beyond pre-existing prejudices.	
[39], McGinley, L.D., 2008	Clinical nurse specialists in bariatric surgery services	Outlines the role of CNS in optimal bariatric care, including use of experience and knowledge to educate others in team. Outlines skills and core competencies for the CNS.	The paper outlines the role of CNS in bariatric services and the education, experience and knowledge required to successfully manage a service and achieve centre of excellence status.	For the CNS, achieving core competencies will allow functioning as team leader and enhancement of care.	Abstract only, but provides some information regarding desired skills, knowledge and experience of CNS for effective leadership and practice development.
[31], McIntyre, T., Jones, D.B., 2005	Bariatric surgeons who perform Roux en Y bypass surgery	Patient safety is a challenge for bariatric services and there is a requirement for consensus on optimal training of a bariatric surgeon. There is a long learning curve entailing the undertaking of 75-100 procedures, and a range of models of training available. Models: no formal training; formal course; mini-fellowship; and minimally invasive surgery/bariatric fellowship. The paper presents the models and makes comparisons.	The paper outlines the magnitude of the obesity problem in the USA and the rise in numbers of bariatric operations carried out. The main body of the paper is about appropriate training for bariatric surgeons who perform laparoscopic procedures. A range of training models are discussed.	The best method of training surgeons is the minimally invasive surgery/bariatric fellowship. Courses should include preoperative assessment, long-term surveillance and highest level of laparoscopic skills. Leaders in the field must continue to define the safest method of training bariatric surgeons.	The paper provides useful information on training of bariatric surgeons including suggestions for topics to include in courses and fellowship training.
[37], Michalsky, M., Kramer, R.E., Fullmer, M.A., Polfuss, M., Porter, R., Ward-Begnoche, W., Getzoff, E.A., Dreyer, M., Stoltzman, S.,	Multidisciplinary	Development of quality criteria will enable improved practice in bariatric surgery for adolescents.	Case volume has led to improved service quality for adult bariatric surgery patients. Current increases in numbers of adolescents having bariatric	The criteria developed will inform safe and effective care for bariatric adolescents undergoing surgery.	The paper provides a range of themes under which criteria for care are developed. However, the work is poorly referenced and it is difficult to be confident

Reichard, K.W. , 2011			surgery may similarly drive up standards. Caring for adolescents following bariatric surgery incurs special considerations. The article proposes evidence-based guidelines and a national longitudinal database recording outcomes for bariatric surgery for adolescents. This would enable the creation of bariatric surgery specialist programs. The ultimate goal is to develop best practice criteria and benchmark success.		in the quality of the evidence provided.
[23], Mulligan, A., Young, L.S., Ranadall, S., Raiano, C., Velardo, P., Breen, C., Bushee, L., 2005	Nursing staff providing care for bariatric surgery patients in MDT	Best practice guidelines developed from research findings are essential to inform bariatric surgical care practice	There are increasing numbers of people having bariatric surgery in USA, but little understanding of optimal nursing practice in this area. Reported in the article is a process through which best practice guidelines were developed for nursing within the MDT.	Nurses' knowledge of severe obesity, its consequences, possible procedures, assessment and identification of complications is essential to patients' recovery.	Systematic review of the literature to develop guidelines for optimal care is appropriate and essential for the development of evidence based guidelines. However, most of the evidence gathered was of poor quality or based on expert opinions.
[24], Mulligan, A.T., McNamara, A.M., Boulton, H.W., Trainor, L.S., Raiano, C., Mullen, A., 2009	Nursing caring for Weight Loss Surgery (WLS) patients	Nursing bariatric surgery patients is complex and nurses are key team members who require current knowledge and considerable experience to provide a high quality service. This paper systematically reviews recent literature relevant to bariatric patient care and provides comprehensive evidence from which services can inform practice.	A systematic review to examine examples of best practice and provide an evidence base for up to date practice.	The role of the nurse in bariatric surgery is developing rapidly, and nurses are instrumental in enhancing outcomes of long-term follow-up. However, lack of high quality studies of care in bariatric surgery limits drawing conclusions.	The study provides comprehensive information on nursing knowledge and skills required to care for WLS patients. However, the variable quality of studies included in the review limits evidence for informed practice.

[25], Ohio Board of Nursing, 2010	Registered nurses	The guideline covers educational, training, practice and environmental considerations are provided to guide nursing care for patients with gastric band.	Bariatric procedures are relatively new in Ohio and registered nurses find they are being asked to take part in filling and unfilling patients' gastric bands. The guideline provides direction for the procedure.	Nurses should only provide care that is compatible with their education, experience, knowledge and competency.	Guidelines for care of the gastric band provided, with legal, ethical and moral obligations outlined.
[26], Sabol, V.K., Hammersla, M., Reedy Idzik, S., 2012	Nurses and Advanced Practice RN students	Detailed recommendations are provided for education and training of APRNs to facilitate care of obese patients. There are small sections on specific recommendations for caring for bariatric surgery patients.	There is a high prevalence of obesity in the USA and nurses and students need additional education and training to provide high quality services to this patient group. Nurse practitioners have a key role in caring for obese patients though no information on competencies or curricular recommendations are available. The paper provides recommendations for incorporating obesity into Adult APRN education.	Tackling the obesity epidemic requires strategic planning and the education and training of nurses and APRNs should be part of development of services. New and innovative teaching strategies and clinical experiences will encourage critical thinking and problem solving skills. Education for obesity should focus on obesity as a unique disease state, and provide students with opportunities for discussion, practice, reflection and feedback.	The paper provides detailed recommendations for generalised care of obese patients. Small sections on bariatric surgery are incorporated.
[30], Scarano, E.M., 2009	Student nurses	Teaching of student nurses on bariatric care is neglected to the detriment of bariatric patients. By dedicating a lecture to the topic it is believed the nurses will be better equipped to provide high quality care to overweight patients. Patients cared for by nurses who have had this training should then experience their healthcare in a more positive light.	Bariatric care is complex and neglected in nurse education. The author described in the paper, development of a lecture for student nurses on bariatric care.	The author would like to expand the format of bariatric education to include a one semester course with emphasis on the causes, prevention and treatment of obesity. Early education for student nurses should reduce risk of injury when working with bariatric clients. She would like to see a time when bariatric care is included in the curriculum as a standard item.	Educating student nurses on bariatric care seems pertinent in light of increasing numbers of obese clients and rate of injury when dealing with overweight patients. An educational intervention may help nurses understand what it is like to be obese and what can be done to assist the obese client.
[32], Schirmer, B.D., Schauer,	Bariatric surgeons	Increasing numbers of patients	Increased incidence of	Training the next generation of	Provides a useful general

P.R., Flum, D.R., Ellsemere, J., Jones, D.B., 2007		undergoing bariatric surgery depends on more individual surgeons becoming educated and experienced in the field.	bariatric surgery with positive impact in terms of mortality means bariatric surgeons must be highly educated and experienced. The paper outlines required knowledge and competencies, and the types of courses available to facilitate learning.	bariatric surgeons is essential for development of the field.	overview of surgeon preparation for bariatric surgery.
[35], Wadhwa, A., Alvarez, A.O., 2013	Anesthetists	Clear recommendations for core competencies are provided. Recommendations provided in the paper are supported in the literature.	Anesthetists are coming across an increasing number of morbidly obese patients in their clinical practice. Altered anatomy, physiology and pharmacological factors are aspects anesthetists should understand. To prepare anesthetists to care for this client group the paper suggests factors incorporating understanding and recommends core competencies.	A range of educational opportunities and tools should be used to prepare anesthetists for bariatric patients: simulation; clinical training; online learning tools; scientific meetings, and printed materials.	The paper provides a clear outline of core competencies for anesthetists.
[5] Walsh, A., Albano, H., Jones, D.B., 2008	The bariatric surgery team	The paper provides recommendations on setting up a bariatric surgery unit: staff – roles, experience, education environment and special requirements	None	Continuity of care from staff with proven competencies is essential for optimal outcomes for bariatric surgery patients.	The paper provides a review of the personnel, environment, and skill set required by staff to optimally care for bariatric surgery patients. A framework for development of practice is provided.
[28], Welton, R.H., 2007	Nurses caring for bariatric surgery patients	Competency-based education is one way of preparing nurses to care for bariatric surgery patients. The article provides the rationale for this approach, and describes development of a competency framework for nurses caring for bariatric	Increased numbers of patients having bariatric surgery means nurses need to be prepared to care for this specific group. Competency-based education is one approach, and the paper describes development of program for training bariatric	The bariatric competency framework can guide staff in identifying specific bariatric complications, collaboration to resolve difficulties, and provide psychological support.	A good example of a structure for development of the competency framework for nurses caring for bariatric surgery patients.

		surgery patients.	surgical nurses. A template is developed for customization to local situations.		
[29], Wright, K., Bauer, C., 2005	Refers to the multidisciplinary approach to bariatric care: surgeon, clinical nurse specialist, dietician, social worker, exercise specialist	The paper outlines a definition of morbid obesity, national trends in proportion of population overweight, and rise in use of bariatric surgery as a treatment option. Important criteria for offering a service are noted: patient selection, assessment and care planning. The bariatric program at the authors' hospital is identified, in which the multidisciplinary team is essential for providing an optimal service. Hospital wide staff education and competency to care for bariatric patients is a priority. Education focuses on: morbid obesity as chronic illness; associated co-morbidities; surgical risks and complications; post-op care; cultural sensitivity; access and correct use of size appropriate equipment. The need for standardized procedures is identified to holistically meet patients' needs and promoting clinical safety and patient dignity.	The paper is about developing practice and protocols for optimal care and outcomes for bariatric surgery patients.	Parameters for education of MDT in care for bariatric patients include: recognition of morbid obesity as a chronic illness with associated co-morbidities; specific surgical risks and post operative care; cultural sensitivity; and use of size appropriate equipment.	The paper is based in a hospital with provision for bariatric surgery and takes a pragmatic approach to development of services to meet the specific needs of this group. It recognizes bariatric surgery as a developing field and aims to develop appropriate protocols for use by a multidisciplinary team. However, very little information provided to inform development of appropriate competencies. Headings given, as above, with no further information.

Appendix VI: Listing of conclusions by paper

The value of ongoing psychological support for the bariatric patient, surgeon and multidisciplinary team

Conclusion 1	The mental health practitioner (MHP) in bariatric surgery should bring knowledge of mental health and psychological pathologies, their treatment, peoples' coping styles and other issues like sexual abuse.
Illustration	Exploring a history of abuse, psychiatric treatment, psychotropic medications, coping style, depression, and suicidal behavior can yield a wealth of information regarding the probability of patients making the dramatic postoperative changes that bariatric surgery requires. (no page number.)
Conclusion 2	The mental health practitioner in bariatric surgery should be knowledgeable about the procedures undertaken and their meaning for patients post operatively.
Illustration	Knowledge about the surgery and postoperative expectations for lifestyle and nutritional changes can ensure a more comprehensive evaluation by the MHP. With knowledge of the surgery, the MHP should be able to evaluate the patient's responses to ensure that the patient is truly making an informed decision, has realistic expectations for the postoperative outcome, and is motivated to make the necessary lifestyle and nutritional changes for postoperative success.

Guidelines for institutions granting bariatric privileges utilizing laparoscopic techniques

Conclusion 1	Specific techniques or competencies for the surgeon to achieve for each procedure should be set in advance.
Illustration	Criteria of competency for each procedure should be established in advance and should include evaluation of: familiarity with instrumentation and equipment, competence in their use, appropriateness of patient selection, clarity of dissection, safety, successful completion of the procedure, technical complications, and documented outcomes. (p674)

The Cancun IFSO statement on bariatric surgeon qualifications

Conclusion 1	A practising bariatric surgeon should be a qualified GI surgeon who has completed a GI surgery training program
Illustration	Minimum standard for a bariatric surgeon is to be a fully-trained, qualified, certified general or gastrointestinal surgeon who has completed a recognized general/gastrointestinal surgery program.
Conclusion 2	The bariatric surgeon should have completed a preceptorship program
Illustration	The surgeon has completed a preceptorship in all aspects of bariatric surgery including patient education, support groups, operative techniques and postoperative follow-up with an IFSO or IFSO Adhering Body-designated bariatric surgeon or one who has performed at least 200 bariatric surgical procedures and has 5 or more years of experience in the field of bariatric surgery.
Conclusion 3	Proof of surgical ability is required.
Illustration	The surgeon has received a written approval from his/her preceptor of satisfactory bariatric surgical abilities.
Conclusion 4	The bariatric surgeon must maintain up to date knowledge.
Illustration	The bariatric surgeon maintains a well-informed, up-to-date knowledge of bariatrics and bariatric surgery literature such as contained in the journal Obesity Surgery.
Conclusion 5	Bariatric surgeons should become members of IFSO or another adhering body and each surgeon, prior to beginning to practice, should have taken an IFSO course or has attended an IFSO meeting.

Illustration	The surgeon should have, or have applied for, membership in an Adhering Body of IFSO or, if no such national body is available to him or her, to IFSO directly.
Conclusion 6	The IFSO statement on bariatric surgeon qualifications stated bariatric surgery should only take place where there is adequate provision of equipment and staff.
Illustration	The surgeon performs bariatric surgery in institutions where he/she has made every reasonable effort to obtain equipment, facilities and support systems adequate for the comfort, safety and dignity of bariatric surgery patients.

Ethics and policy for inter-professional scopes of practice: preparing bariatric care teams

Conclusion 1	Themes for inter-professional competencies are based on teams shared values and ethics, understanding of each other's roles, communicating and working together effectively.
Illustration	Four basic inter-professional competencies were outlined: (1) shared values and ethics, (2) roles and responsibilities (scopes of practice), (3) communication, and (4) teams and teamwork. (p94)
Conclusion 2	Introduction of inter-professional competencies need not be complex and will facilitate measurement of outcomes.
Illustration	Focusing on simple changes in professional educational competencies will help enhance measurement of inter-professional outcomes within bariatric care. (p94)
Conclusion 3	Understanding when colleagues' knowledge and skills are required to provide optimal care is a key competency.
Illustration	Professionalism demands the acquisition of competencies that will foster equitable negotiation in patient care, furthering healthcare effectiveness. Another duty is delegation of tasks to the appropriate healthcare personnel, and this requires knowledge of self and of others. Delegation when working within inter-professional teams requires knowledge of various professional scopes of practice. As mentioned previously, the complexity of bariatric populations and their accompanying comorbidities already require a team approach, so knowing the scopes of those on the team is vital to safe and effective delegation. (p95)

Preparation for a bariatric centre of excellence site survey: an educator's perspective

Conclusion 1	Implementation of the educational program begins when new nurses (trained and untrained) are orientated to the bariatric surgery unit.
Illustration	An observed performance format for bariatric nursing was initiated during clinical orientation. Critical aspects for safe passage of the bariatric surgery patient were identified and integrated into the unit-specific nursing orientation (p4).
Conclusion 2	Competency of nurses evaluated at the bedside by the preceptor, but can be affected by variability in how competency observed, interpreted and validated.
Illustration	The criteria were designed to measure knowledge, psychomotor skills, critical thinking, and interpersonal skills used during an actual patient encounter, with emphasis on desired outcomes in the practice setting. To limit variability in preceptor competency, preceptors were validated by the CNS or the bariatric coordinator using standardized educational content. (p4)
Conclusion 3	Online resources and a trained link person for each unit should be available to prepare nursing staff for safe use of bariatric equipment
Illustration	Representatives from bariatric bed, transfer device, and lift companies provide an eight-hour in-service education day with demonstration and return demonstration for selected equipment used in each unit. Objectives listed on a check off sheet (see p6).
Conclusion 4	There are some essential components of a learning package for nurses in the bariatric team.

Illustration	The learning objectives were to (a) outline postoperative care, (b) identify potential bariatric surgery complications, (c) describe how the organization uses bariatric critical pathways, (d) describe ways to provide sensitive health care, and (e) identify where to find bariatric equipment manuals. The sections in the module were Post-op Care, Complications, Critical Pathways, Sensitivity, Back Safety, Resources, and the Post Test. (p7)
Conclusion 5	Outcomes for the development of a bariatric surgery program, include nursing competency and site survey.
Illustration	There were two desired outcomes: (a) nursing staff demonstrating competency within the clinical setting and the ability to discuss the care of the bariatric surgery patient and (b) a successful site survey, which would gain the organization the desired designation. (p8)
Conclusion 6	Proper and safe use of bariatric equipment is a requirement for bariatric nurses.
Illustration	An eight-hour in-service education day with demonstration and return demonstration for selected equipment used in each unit. Specific learning objectives were defined and individualized for each unit or department. The coordinator ensured that all the specific equipment requirements were met for each staff person and validated the competency. (p7)
Conclusion 7	Computer-based training for sensitive practice may not be ideal
Illustration	Initial difficulties locating materials on internet were identified. For the future, one potential improvement is a software augmentation to build interactive modules that allow users to enter data or commands during a learning session to enhance learning. It may be beneficial to incorporate these concepts into preceptor training, placing emphasis on role modelling of accepting attitudes and using peer pressure to shape behavior. (p9)

Implementing a bariatric surgery program

Conclusion 1	Staff (MDT) caring for bariatric surgery patients should be skilled and knowledgeable specifically for the field.
Illustration	Care in the post-anesthesia care unit, surgical intensive care unit, and medical-surgical care unit requires staff members who are educated about and designated for the care of bariatric patients. (p204)

The CNS Role: coordination of a bariatric surgery program across the continuum

Conclusion 2	CNS collaboration may enhance provision of safe care and follow-up for bariatric surgery patients.
Illustration	Development of shared pathways ensures the specialized plan of care is followed and alerts the team to additional individualized needs. (p225)

An update on best practice guidelines for specialized facilities and resources necessary for weight loss surgical programs

Conclusion 1	There are key roles to develop within a successful MDT.
Illustration	Multidisciplinary care is generally considered essential in the management of clinically complex and high-risk WLS (weight loss surgery) patients. Such care involves the creation of a WLS team with a dedicated and appropriately credentialed director. It also includes appropriately trained surgical, medical, psychiatric, and nursing personnel. Such staffing is now required by both the American College of Surgeons (ACS) as well as the American Society for Metabolic and Bariatric Surgery (ASMBS). (p912)
Conclusion 2	Prejudicial attitudes are detrimental to good care of severely obese patients; therefore training for MDT that includes sensitive care is appropriate.
Illustration	Obese patients continue to experience significant societal stigma, and this can prevent them from obtaining appropriate care for their obesity or medical conditions. An environment free of prejudicial attitudes toward obese patients is a critical component of a treating facility, and an important requirement

	in providing care. Data show that nursing training that includes a sensitivity component has the potential to be more effective than that which does not (13). Moreover, all staff members who interact with obese patients need to undergo such training, including nonclinical personnel in areas such as transport or administration. (p912)
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Suggestions for the pre-surgical assessment of bariatric surgery candidates

Conclusion 1	Psychological assessment of bariatric surgery patients requires a minimum level and kind of experience.
Illustration	American Society for Bariatric Surgery (ASBS) believes that the application and interpretation of objective psychological tests, the ability to identify discrete risk factors not amenable to testing, as well as the capacity to conduct pertinent clinical interviews and to organize this information in a way that directly speaks to the adjustment of the individual after surgery requires a particular level and kind of experience that is specific to bariatric surgery. (p15)
Conclusion 2	Psychologists should have knowledge of minimum standards for bariatric surgery and understanding of how psychological and physical components interact.
Illustration	The minimum standards of this specialty should include a basic working knowledge of the nature and mechanics of bariatric surgical procedures and their postoperative course, the physiological effects of morbid obesity and dieting, as well as a basic knowledge of the psychology of eating and morbid obesity. Furthermore, an understanding of the complexity with which these factors combine, interact, and manifest in the postoperative patient is also essential.(p15)
Conclusion 3	Evaluating surgeons should hold a professional license.
Illustration	This authorizes them to formulate a clinical diagnosis according to DSM-IV criteria. Additionally their license should authorize them to conduct psychological evaluations, perform psychotherapy or counselling of adults with an Axis I or Axis II clinical diagnosis or other psychological conditions that may be a focus of clinical attention as outlined in the DSM-IV, and administer and interpret psychological tests.
Conclusion 4	The evaluator (psychologist) should understand vulnerabilities and risk factors that determine the patient's ability to cope with life changing surgery.
Illustration	This specialization should include a thorough understanding of the psychosocial, financial and physical stresses imposed on the patient who has morbid obesity and current views on how certain psychosocial factors (e.g. mood, substance abuse, personal abuse or victimization, eating behavior, and social support) may affect surgical outcome. p15
Conclusion 5	Psychologists should be able to develop self management strategies for patients to enhance adherence to treatment guidelines.
Illustration	Strategies to enhance patient adherence to treatment (self-management) guidelines over the long-term course of postoperative care, develop relapse prevention strategies, and teach or facilitate life skills (e.g. modulating emotions, pacing oneself and limit-setting) associated with using the surgical pouch and managing the disease of morbid obesity. p15

Facilitating students' competence in caring for the bariatric surgical patient: the case study approach

Conclusion 1	Nursing students should be taught how to deliver high quality care to bariatric surgery patients.
Illustration	Nursing students must learn key concepts and theories of obesity and the principles that guide its treatments within a disease management framework. (p118)
Conclusion 2	A range of key skills may be taught to student nurses using a structured approach to prepare them for caring for bariatric surgery patients.
Illustration	Pathophysiological principles, risk factors, clinical manifestations, assessment and diagnostic findings for the obese patient should all be addressed within the nursing process framework. (p118)

Conclusion 3	Obesity can be a stigmatizing disease and obese people can be misperceived by clinicians. Student nurses should have opportunities to explore their feelings and perceptions.
Illustration	Students' feelings and perceptions regarding obesity should be explored, and theories that explain the complex pathogenesis of obesity should be proffered, much in the same way that students tend to be taught about alcoholism and addictive disorders. (p118) Students should be encouraged to examine their own beliefs and attitudes toward obesity so that they can move beyond any pre-existing prejudices or misperceptions and deliver the best care to patients diagnosed with obesity. (p124)
Conclusion 4	The case study format is a technique used to facilitate active learning in student nurses.
Illustration	One method of active learning that can facilitate critical thinking, problem solving and confidence in clinical practice is the case study format. (p118)
Conclusion 5	Practical experience of caring for bariatric surgery patients is an essential part of student nurse learning.
Illustration	Practicum experiences for student nurses should include rotations in weight management centres and bariatric services programs, and with support groups. (p124)

The vital role of a clinical nurse specialist in a bariatric setting

Conclusion 1	The bariatric program coordinator (CNS) requires leadership skills and clinical expertise.
Illustration	The role of bariatric program coordinator requires skills in team management, education, advocacy, and sound clinical judgment.
Conclusion 2	Core competencies for the CNS include expertise in clinical care, consultation, professional guidance, leadership, collaboration
Illustration	The core competencies of expert clinical practice, consultation, expert guidance, and both clinical and professional leadership, as well as collaboration, allow a CNS to function ideally as the leader of an interdisciplinary team with the desired outcome of enhanced patient care.

Training methods for minimally invasive bariatric surgery

Conclusion 1	No longer adequate for surgeons to learn bariatric skills on the job.
Illustration	Increasingly rare are surgeons who attempt laparoscopic bariatric surgery with no formal training. In our current environment a more thoughtful approach is encouraged. (p59)
Conclusion 2	Formal course for trainee surgeons should be taught by experienced instructors, and include taught and practical components.
Illustration	A curriculum that includes didactic instruction as well as hands on experience using inanimate and/or animate models. But insufficient for performing bariatric surgery independently.
Conclusion 3	Mini-fellowships and proctorships are recommended.
Illustration	Mini-fellowship: week long mini-fellowships usually include attendance at preoperative and postoperative clinics, animate and inanimate skills laboratory experience, as well as observation of laparoscopic bariatric surgery. The one week intensive courses recommend the entire bariatric team participate, including: the primary general surgeon, operating room first assistant, bariatric program co-ordinator, and other OR staff. With proctorships an experienced bariatric surgeon is hired to observe the first several cases of a surgeon beginning his bariatric practice.
Conclusion 4	Minimally invasive surgery/bariatric fellowship may provide optimal training.
Illustration	Minimally invasive surgery/bariatric fellowship: the vast majority are one-year programs; however, a

	growing number of two year programs exist that include a year of research. Currently no official guidelines that concern caseloads and fellow requirements are available. Most fellows participate in the preoperative, intraoperative, and follow-up care of approximately 250 laparoscopic patients.
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Developing criteria for pediatric/adolescent bariatric surgery programs

Conclusion 1	Accredited training is recommended for bariatric surgeons.
Illustration	The surgeon-training requirement could be satisfied by completion of bariatric coursework from relevant professional organizations that offer training in bariatric care (e.g. American Society for Metabolic and Bariatric Surgery and American College of Surgeons), co-surgeon experience, and/or proctoring of the initial. (pS66)
Conclusion 2	Multidisciplinary training in perioperative and postoperative care is required.
Illustration	The multidisciplinary care team should be trained in perioperative and postoperative care of the patient receiving bariatric care.
Conclusion 3	In-service education for the MDT should cover: sensitive care, understanding of medical and psychosocial difficulties for the severely obese adolescent, understanding of complications of bariatric surgery for adolescents.
Illustration	Evidence of this commitment should include ongoing in-service education programs in adolescent bariatric surgery and regular administrative review of the program. This requirement refers to a culture in which the staff are prepared to manage morbidly obese adolescent patients with understanding and compassion and to appreciate the medical and psychosocial comorbidities of the disease in this population. The staff should be aware of the basic concepts of bariatric surgery through in-service programs. Direct caregivers should be able to recognize the early signs of common clinical complications (e.g. pulmonary embolus, anastomotic leak, infection, bowel obstruction, and other specific device- or procedure-related complications) so that they can be managed promptly. (pS67)
Conclusion 4	Safe moving and handling of bariatric patients is a core competency for members of the MDT.
Illustration	Providers should be available to educate hospital and clinic staff in appropriate mobility logistics within the perioperative period (including the sage use of bariatric-specific patient-transfer equipment).
Conclusion 5	Evidence of commitment should include ongoing in-service education programs in adolescent bariatric surgery and regular administrative review of the program.
Illustration	This requirement refers to a culture in which the staff are prepared to manage morbidly obese adolescent patients with understanding and compassion and to appreciate the medical and psychosocial comorbidities of the disease in this population. The staff should be aware of the basic concepts of bariatric surgery through in-service programs. Direct caregivers should be able to recognize the early signs of common clinical complications (e.g. pulmonary embolus, anastomotic leak, infection, bowel obstruction, and other specific device- or procedure-related complications) so that they can be managed promptly. (pS67)

Best practices for perioperative nursing care for weight loss surgery patients

Conclusion 1	Proven competency based education is required for nurses to provide optimal care to bariatric surgery patients.
Illustration	Competency-based nursing care is essential to ensure the safety of WLS patients and nursing staff. Those who care for patients with severe obesity should complete a competency-based orientation that enables them to identify potential complications and prevent adverse outcomes. (p268)
Conclusion 2	Nurses should have an all round knowledge of bariatric surgery.
Illustration	Core curriculum should cover the physiological and psychological effects of severe obesity, associated comorbidities, surgical options, and the benefits and risks of surgery. (p268)

Conclusion 3	Safe handling of severely overweight patients is essential from the nurse's and the patient's perspective.
Illustration	Nurses should be able to demonstrate skill and knowledge in the use of special equipment for patients with severe obesity. (p268)
Conclusion 4	Competency in psychological assessment and sensitive care is required for bariatric nurses.
Illustration	Educational in-service sessions should be made available to increase understanding of obesity-related psychological issues and promote awareness of intended or unintended bias (e.g. groans during transport). (p268)
Conclusion 5	In nursing, accredited courses in bariatric nursing are poorly developed
Illustration	Ongoing nursing education to advance and maintain specialized knowledge in the care of severely obese WLS patients. (p272)

Best practice updates for nursing care in weight loss surgery

Conclusion 1	Nurses can coordinate education within the multidisciplinary team and address key factors related to bariatric surgical care.
Illustration	The nurse promotes multidisciplinary team collaboration by developing and implementing education programs related to the care of the WLS patient. This collaboration promotes awareness of evidence based practices and sensitivity to the needs of extremely obese patients. (p895)
Conclusion 2	There is a need to educate emergency department staff, as first points of contact, about latent complications of bariatric surgery.
Illustration	Complications may occur after discharge, necessitating evaluation in the emergency department. The emergency department staff must be knowledgeable about early and late complications related to WLS surgery. Particular attention must be paid to tachycardia, as this can be a sign of anastomotic leak or dehydration. (p896)
Conclusion 3	Bariatric patients can have respiratory difficulties under anesthetic, therefore, anaesthetic nurses should have knowledge of pathophysiological changes in obesity.
Illustration	Perianesthesia nurses must be knowledgeable in the pulmonary pathophysiology of obesity. (p896)
Conclusion 4	Patient and staff safety is a key consideration in bariatric surgical nursing care and nursing staff should be trained to use patient handling equipment.
Illustration	On units where specialized lifting equipment is in place, staff should be educated in its safe and regular use. (p897) A peer Back Injury Resource Nurse can be designated to coordinate staff and patient education. (p897) A designated nurse, or back injury resource nurse, to coordinate equipment selection, maintenance, staff training, and reporting. (p897)
Conclusion 5	Educating nurses about follow up care for bariatric surgery patients is necessary.
Illustration	Knowledge of possible late complications, how to support patients, and how to make referrals to appropriate caregivers. (p899)

Board approves new interpretive guidelines

Conclusion 1	The knowledge and competencies required to provide high quality gastric band care relate to anatomy and physiology, assessment of severely obese individuals, practical skills, monitoring and patient/family education.
Illustration	The registered nurse's education/training and demonstrated competence should include, but is not limited

	to, the following: a) gastrointestinal anatomy and physiology; b) indications, contraindications, potential complications and maintenance considerations related to various surgically-placed gastric banding systems; c) skill in locating and accessing gastric band system ports with required needles/devices; d) nursing needs specific to bariatric clients; e) nursing responsibilities, including, but not limited to: observation and monitoring of clients' gastrointestinal functions and other parameters, and applicable teaching for patients, family, or significant other specific to the client and the gastric banding system utilized. (p16)
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Incorporating obesity education into adult primary and acute care nurse practitioner programs

Conclusion 1	Bariatric surgery related management should be part of education for nurse practitioners caring for obese patients.
Illustration	Student understands that risk for abdominal and GI-related complications of bariatric surgery may present after the immediate post-op period. Student understands that anatomical changes associated with bariatric surgery and how this changes the medical management, specifically related to procedures. (p66)
Conclusion 2	Educational interventions for adult/gerontological nurse practitioner (AGNP) students should include care of bariatric surgery patients, and take a whole person approach.
Illustration	Those responsible for educating (adult/gerontological nurse practitioner) AGNP students on the specific care needs of patients diagnosed with obesity need to reconsider the current teaching approach and present content from the whole-patient perspective rather than in segments (e.g. pulmonary/ventilator considerations for the patient who is obese). (p65)
Conclusion 3	Nurses need to develop competency in the complete assessment of obese patients.
Illustration	A course in comprehensive health assessment should include detailed history-taking skills related to obesity, including diet, exercise, weight loss attempts, family history, genetic conditions, medications, and psychosocial factors. In addition, students should understand the use of and limitations of BMI and waist circumference as a measure of obesity. Students must understand physical findings associated with primary and secondary obesity. Knowledge of ongoing research will help the student process the basic science foundation of this disease. (p65)
Conclusion 4	Use of a range of teaching strategies provides students with opportunities to engage and apply skills.
Illustration	Teaching strategies that target the adult learner (e.g., self-guided online learning, role playing, virtual patients, high-fidelity simulators, and objective structured clinical examinations) in addition to traditional didactic instruction can be used to incorporate obesity content into the curriculum. These strategies allow adult/gerontology nurse practitioners (AGNP) students the opportunity to engage and apply psychosocial skills (e.g. difficult conversations and counselling techniques), psychomotor skills (e.g., central line insertion), and critical thinking skills (e.g. ventilatory management) to the care of overweight and obese patients in a non-threatening, safe environment. (p66)
Conclusion 5	A range of topics related to surgical management are recommended for educating nurse practitioners
Illustration	Identify bariatric surgery-related management issues; high-risk procedures (e.g. endotracheal intubation and nasogastric/oral gastric tube placement); postoperative complications (acute and long term); vitamin supplementation; pregnancy; failure to obtain optimal weight loss and/or weight regain (p64)

A big lesson for nurse educators

Conclusion 1	Student nurses should understand types of bariatric surgery, its complications and follow-up care.
Illustration	A basic understanding of common bariatric surgeries, complications, and aftercare would also be a necessary learning objective. (p260)

Bariatric surgery training: Getting your ticket punched

Conclusion 1	Acceptable levels of experience for carrying out bariatric surgery should be defined
Illustration	The surgeon should: (1) have privileges to perform open bariatric surgery; (2) have privileges to perform advanced laparoscopic surgery; (3) document three proctored cases in which the assistant is a fully trained bariatric surgeon; and (4) document the outcomes of 15 laparoscopic bariatric surgical cases performed as the primary surgeon, which demonstrated an acceptable perioperative complication rate. (p808)
Conclusion 2	Mini-fellowships are one way to educate surgeons and should include clinic, preoperative, perioperative and postoperative experiences.
Illustration	Mini-fellowships range from four-day programs without an operative component to a three- to six-month experience as an integrated surgical fellow experience. Week long mini-fellowships usually include attendance at preoperative and postoperative clinics and animate and inanimate skills lab. Participants often observe several laparoscopic bariatric operations. (p810)
Conclusion 3	A range of topics for surgeon education include epidemiology, physiology, assessment, operative management, and monitoring for complications
Illustration	Topics covered may include epidemiology, history, physiology, preoperative evaluation, psychological assessment, postoperative management, restrictive and malabsorptive procedures, revisional surgery, managing postoperative complications, nutritional deficiencies, and outcomes. (p811)

Should anesthesiologists managing morbidly obese patients receive special education and training?

Conclusion 1	Anaesthetists caring for bariatric patients need to have competent medical knowledge of anatomy, physiology and pharmacological differences attributable to severe and complex obesity.
Illustration	Learn pathophysiology of obesity and obstructive sleep apnoea. Learn differences between body weight scales and their use for pharmacokinetic and pharmacodynamic differences in the morbidly obese. (p9)
Conclusion 2	Anesthetists should develop skills in airway management, patient positioning, regional anaesthesia and analgesia appropriate to the bariatric patient.
Illustration	Learn preoxygenation and effective airway management. Learn proper positioning to avoid skin breakdown, rhabdomyolysis and peripheral nerve injury. Learn regional anaesthesia and analgesia, and concepts of non-narcotic multimodal analgesia. (p9)
Conclusion 3	Anesthetists should develop skill in multidisciplinary team communication.
Illustration	Communication with preoperative team about adequate IV access, intraoperative team about positioning issues, and surgical team regarding concerns such as DVT. (p9)
Conclusion 4	Anesthetists should have awareness of the complex needs of bariatric patients regarding their care.
Illustration	Improve system-based awareness of issues of obese patients in the perioperative period such as adequate sized beds, and transport and moving issues. (p9)
Conclusion 5	Anesthetists should develop a sensitive approach to interactions with obese individuals.
Illustration	Compassion for morbidly obese patients and demonstrate and expect sensitivity from the team. (p9)

A peri-operative team approach to treating patients undergoing laparoscopic bariatric surgery

Conclusion 1	Skills in assessing moving and handling risks are essential.
Illustration	Continuity of care requires that personnel in all areas be aware of a patient's needs related to mobility,

	equipment weight restrictions, and the need for special equipment (e.g. sleep apnoea equipment).(p61)
Conclusion 2	MDT members need to be able to identify signs of complications post bariatric surgery.
Illustration	Educating team members in identifying factors that increase the patient's risk for complications (e.g. airway, haemorrhage, leak, fluid, electrolyte imbalance). (p62)
Conclusion 3	Aspects of training for the MDT are patient safety, sensitivity, and communication skills.
Illustration	Team training that includes hospital and unit-specific education programs on patient safety, sensitivity, and communication skills. (p63)
Conclusion 4	Skills training in the simulation centre provides technical experience and facilitates proficiency assessment and validation.
Illustration	A Simulation and Skills Training Centre that provides hands-on proficiency and technical training. (p63)
Conclusion 5	Knowledge should be updated and assessed when new techniques and technologies are in use.
Illustration	New procedures, techniques and technology should be explored, and knowledge and competency should be assessed via a formalized evaluation and checklist to reinforce safety standards and ensure best practices for better patient outcomes. (p64)

Developing bariatric population specific competency for nurses

Conclusion 1	Competency-based education focuses on the practitioner using their knowledge to inform care.
Illustration	Competency emphasizes a person's actual performance in real life situations as opposed to simple knowledge or having the potential to perform. (p295)
Conclusion 2	Each competency should have a definition and be measurable by set criteria.
Illustration	Competencies are definable, observable, and measurable behaviors, usually described by a number of performance expectations or criteria. (p295)
Conclusion 3	Competency assessment checklists can be used to identify behaviors to look for when assessing performance, and for new staff to understand how they should perform.
Illustration	Checklists are used by preceptors to clarify what behaviors they should look for when they are assessing competencies, and they are used by new staff to clarify how they are expected to perform in various areas of care. (p296)
Conclusion 4	Competencies may or may not have assessment guidelines. However, where there is guidance the assessor should be clear about which behaviors to look for, and the assessed should know what they are expected to achieve to be competent.
Illustration	Assessor guidelines clarify for the assessor which behaviors to look for, and they clarify for the assessee which behaviors they are expected to demonstrate to be deemed competent. (p296)
Conclusion 5	Nurses should develop competency focused on providing safe, effective and respectful care to patients after bariatric surgery.
Illustration	Provide psychological support: conveying empathy, understanding and respect; using eye contact and appropriate touch; speaking to patients in a sensitive and non-judgemental manner (p297).
Conclusion 6	Assessment methods for competencies are observation, simulation, case study and testing.

Illustration	Preceptors for new staff can use a variety of competency assessment methods, such as test and quizzes, case studies, simulations, peer review, and observations to assess competencies.
Conclusion 7	A continuum from least reliable (self report) competency assessment method to most reliable (observe actual behaviour) is desirable.
Illustration	Preceptors and managers should adjust competency assessment methods and verification to ensure reliable and valid evaluation of actual clinical performance. (p298)
Conclusion 8	A valid and reliable approach to competency assessment depends less on written responses than observed actions.
Illustration	Being knowledgeable in an area is not equivalent to being clinically competent. Increased reliance on simulations because it requires the staff person to actually perform as expected. Clinical observations are the most valid and reliable means of evaluating if a new nurse can perform in actual patient care situations. (p298)
Conclusion 9	Nurses should develop competencies focused on safe recovery of patients after bariatric surgery
Illustration	<ol style="list-style-type: none"> 1. Monitors patients for adverse effects of bariatric surgery associated with increased mortality: pulmonary embolism and anastomotic leaks. 2. Monitors patients for common post operative complications of bariatric surgery: nausea and vomiting, dumping syndrome, nutritional deficiencies, dehydration, bowel obstruction, strictures, erosions, wound infections, ulcers, adhesions, internal and incisional hernias, cholelithiasis. 3. Identifies patient attributes that have been found to contribute to increased mortality and monitor these patients closely: advanced patient age, male sex, severe obesity BMI 50 or more, co-existing conditions (p297).

Meeting bariatric patient care needs

Conclusion 1	Aspects of focus for bariatric nursing education are multifactorial.
Illustration	Parameters for education in the care of the bariatric surgical patient include recognition of morbid obesity as a chronic illness with associated co-morbidities, cultural sensitivity, and use of size appropriate equipment. p404
Conclusion 2	The efficacy and safety of bariatric surgery depends on having an educated multidisciplinary team
Illustration	Staff education and competency is an ongoing priority for bariatric surgery teams