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Need More Letters to the Editor

Attending the Las Vegas conference in June was a great experience for an old old-timer. I want to share with readers of our national journal that the plethora of ideas and comments during those days appeared in stark contrast to the absence of letters-to-the-editor in this publication.

Whatever the reason, it would be refreshing to read regularly what our members think, experience, and observe.

Sincerely,
Edith S. Lenneberg, ET Ret.

The Bed Bath

As a nursing instructor in a traditional diploma school of nursing, I can assure you the “bed bath” is alive and well, at least in my facility. Our students perform bed baths throughout the three years they are students. How can nurses effectively delegate or supervise care given by ancillary personnel if the nurse has no idea how to perform the task? I tell my students repeatedly that the best way to assess their patients is during the bed bath or morning care. In your editorial, you mentioned that today’s clients are discharged earlier and encouraged to perform their own care—this is true and is the case for elective surgical clients but what about our medical and geriatric patients. We have a large population of patients who require daily bed baths or at the very least cleansing after incontinence episodes. Starting next week we will be having our traditional hygiene skills lab (lovingly called “Bed Bath and Beyond” by our students). We not only stress the importance of the bed bath but positioning, oral care, and skin assessments, but also stress the Braden scale, off loading of heels, and other pressure ulcer prevention strategies.

I left my acute care CWOCN position four years ago because I always considered myself a nurse first and CWOCN second. I didn’t like the direction nursing was taking in some respects, and I wanted to make an impact on the next generation of registered nurses. Even in my CWOCN role I assisted patients with hygiene and on and off bedpans, how could I not? I remember one elderly diabetic gentleman wearing AE hose who needed ostomy teaching. As I looked down at his legs, something just made me ask “Has anyone washed your feet or taken off the stockings?” His reply: “I was told these stockings cannot come off.” A diabetic patient wearing AE hose and no one has assessed his feet for days! I immediately washed and lubricated his feet. That is just basic nursing care.

As wound care experts, we encourage the staff to perform daily skin assessments. I am not saying that the only person who can give a bath is a registered nurse, that would be ridiculous. But, what is wrong with the registered nurse giving a bath to the most acutely ill patient assigned to his or her care? Physical assessment, patient education, and emotional support could be given during the 10 to 15 minutes required to wash this patient. I always loved that aspect of nursing; it was the few minutes of uninterrupted time I could spend with my patients.

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I am very pleased to be invited to write a guest editorial for the *JWOCN*. During the past 3 years I have enjoyed attending the WOCN annual conferences. People have stopped by the WCET booth at the WOCN National Conferences and asked, “What is the WCET, and what does it do?” In this editorial, I will try to acquaint *JWOCN* readers with the structure and functions of the World Council of Enterostomal Therapists (WCET).

The WCET was founded in 1976. The late Norma Gill was instrumental in developing the organization and sharing ET knowledge throughout the world.

Like the WOCN, the WCET is an organization for nurses and interested others focused on ostomy, wound, and continence nursing. The WCET membership is composed of approximately 1100 members, with more than 60 countries represented in this membership. Like WOCN members, WCET members appreciate the value of their membership directory for networking with colleagues, nationally as well as internationally.

WCET organizational structure is somewhat similar to that of the WOCN. There are elected officers and committee chairpersons. There are 10 volunteer executive board members who run the organization via e-mail, periodic teleconferences, and an annual face-to-face board meeting. Establishment of a time for teleconferences is a bit of an engineering feat with current board members located in The Netherlands, Switzerland, Canada, the United States, Australia, and the United Kingdom. For example, during our executive board conference calls, it’s 1 PM Saturday in the Netherlands where I am chairing the call, 5 AM in the United States and Canada, and 10 PM Saturday evening in Australia! The official language for communications and written records is English. We all have fun learning the nuances of English—British English, Australian English, Canadian English, and American English. Some of the other languages spoken by our board are Dutch and French. Besides myself, the current executive board members are Vice President, Elizabeth English, RN, CETN, Adelaide, Australia; Secretary, Michelle Lee Wai-kuen, RN, RGN, BN, MPHC, ET, Hong Kong; Treasurer, Susan Dunne, RN, CETN, Med, Darlinghurst, Australia; Journal Editor, Elizabeth A. Ayello, PhD, RN, CWOCN, APRN, BC, FAPWCA, FAAN, New York, USA; Constitution Chairperson, Shirley McSavency, RN, Dip, PhD, ET, NCA, Ontario, Canada; Education Chairperson, Louise Forest-Lalande, RN, Med, ET, Montreal, Quebec; Norma Gill Foundation, Judith Weller, BSc, SRN, SCM, ET, Lausanne, Switzerland; Publications Chairperson, Donna Weiss, RN, ET, Alberta, Canada; and Charities Commission Trustee, Bart Tappe, UK.

Unlike the WOCN, the WCET is not operated through a professional management company. The only paid member of the organization is its executive assistant in Canada who assists on a part-time basis. Paid financial and legal assistance is obtained, as needed, from a firm in Australia. The treasury is organized in a banking institution with international branches. Unlike the WOCN, the WCET treasurer keeps track of accounts held in Pounds Sterling (£) and some in US Dollars and Euros. Given the different international currency, this can sometimes be challenging. This year, WCET has just begun to have members renew their membership on line via its Web portal.

The WCET also manages the Norma N. Gill Foundation (NNGF). The NNGF is funded by private donations and industry support. It provides scholarships to advance ET education for applicants throughout the world. The types of scholarships include, but are not limited to,
funds for enterostomal therapy nursing educational program (ETNEP) education, membership fees, educational materials, and congress attendance. Typically, 3 to 5 scholarships are awarded each year. Recipients of NNGF scholarships have to write a summary of their experiences and submit a manuscript to our journal.

The NNGF also coordinates what it has named the “Twinning Program.” This program matches members of a developed country where ET nursing is practiced with a developing country. Various types of support are provided for the developing country, such as sharing of knowledge and provision of educational materials. For example, the United States has had a successful twinning project with Chile.

The WCET has been instrumental in the development of ETNEPs in areas that want to develop a program. For example, 2 of WCET’s executive board members volunteered to go to China. They, along with the Hong Kong ET nurses, established the first ETNEP in China. Another board member went to Turkey in 2003 to teach the first WOC course there. She also returned this spring to teach another course.

Each member country elects an international delegate (ID) to communicate to members in its respective countries and to represent its country members at the biennial general business meeting. The vice-president keeps the IDs informed via newsletters. We call our newsletter The Bulletin.

The mission of the WCET is similar to that of the WOCN. WOCN focuses on nurses in the United States. The scope of the WCET is to assist fellow nurses throughout the world. Both of our organizations had their roots in the wishes of Norma Gill. She founded the WCET and the WOCN so that every patient who had stoma surgery received the special care that he or she deserved. It is also always exciting to learn that the approach to patient care in one country may be just the answer that nurses in another country seek to solve the clinical dilemma for their patient. We just had an example of this published in our journal wherein a nurse from Italy was able to help a nurse from South Africa.

Although we come from many different countries and cultures, we have many commonalities and serve as a rich global resource to each other. Part of the WCET mission is to educate nurses throughout the world so that they can provide competent care for ostomy, wound, and continence patients. The WCET accomplishes this mission in several ways.

The WCET Education Committee has some functions that are somewhat like the WOCN Accreditation Subcommittee of the Education Committee. Part of the WCET committee’s work is to review the structure and content of ETNEP programs throughout the world. The WCET does not officially “accredit” ETNEPs, but a certificate of program recognition is provided to those programs that have met suggested criteria for length and content.

Like the WOCN, the WCET sponsors a major educational conference. WCET calls them “congresses.” The WOCN sponsors an annual conference, whereas the WCET holds a congress every 2 years on the even years. A major meeting, as the WCET national conference committee knows, is a monumental job. Try to imagine planning a meeting with participants from every inhabited continent of the world. The biennial congress is much more practical for the organizing committee and the participants. English is the official language for the congress. When 100 participants or more from a particular country are present, simultaneous translations are provided for the main sessions.

Congresses have been held in Milan, Italy; Dusseldorf, Germany; Cleveland, Ohio, USA; Munich, Germany; Transkei, South Africa; Perth, Australia; Gothenburg, Sweden; Toronto, Canada; Lyon, France; Yokohama, Japan; Jerusalem, Israel; Brighton, UK; Singapore; Florence, Italy; and Florianopolis, Brazil.

Each congress begins with a colorful opening ceremony in which the IDs dress in their traditional national costume and carry in the flag of their country. It resembles the opening ceremony of the Olympics. Susan Stelton, from the United States, is the Board Liaison to our 2006 Congress, which will be held in Hong Kong. The 2008 Congress will be held in Ljubljana, Slovenia. We hope to see you there!

An important way that the WCET conveys information to members is through the WCET Journal that is published quarterly. This is a peer-reviewed journal. It is indexed in CINAHL. The articles are published in English and the author’s native language. The WCET Journal’s focus is on international evidence and solutions to clinical problems within the specialty of wound, ostomy, and continence. Members from throughout the world have contributed articles throughout the years. We hope that members of WOCN will consider writing articles that will provide their countries’ perspectives.

In conclusion, there are many similarities between the 2 organizations. They have similar missions. The methods of accomplishing the mission vary. The WOCN is a national organization for WOC nurses, and the WCET is the international organization. Thank you for this opportunity to share information about the WCET with you. If you would like further information about the WCET, including links to the future congress sites, please visit the Web site at www.wcetn.org.

We value our relationship with the WOCN and look forward to our continued collaboration.

Dank U wel, merci beaucoup, vielen dank, muchos gracias, muito obrigada, grazie molto, tusen takk, tack så mycket, mange tak, thank you.
**Guest Editorial**

**Budding Bariatrics**

Sherrill A. Conroy

Jack Sprat could eat no fat
His wife could eat no lean
Success resembles a fat cat
Obesity starts before they wean

Childhood obesity is increasing at an alarming rate in Canada. The number of overweight and obese children jumped from 9-11% in 1986 to 33% in 1996 for boys aged 7-13 years and from 13% to 27% for girls aged 7-13 years. But when does obesity actually start for these children? Our childhood obesity prevention research team at the Faculty of Nursing of the University of Alberta wanted to know what is recognized about causes of obesogenesis during pregnancy and infancy and its prevention. The study discovered not only solid pathophysiological determinants of childhood obesity but also a culture of obesity that is burgeoning in this country. Why is this happening today? Society promotes an acceptability of obesity within certain sectors. In many ethnic groups found in Canada, people’s success is measured by the size of their girth; overweight babies are perceived as healthy. How can we stop this trend? When should we start? Given there are so many biosocio-economic factors to consider, where do we start? It took Katherine Moore to understand the connection between my research interest in early childhood obesity prevention and WOCN when she kindly invited me to write the guest editorial for this special bariatric issue. It is clear that obesity is comorbid with multiple bariatric conditions that have their beginnings in childhood and are related to how we eat, what we eat, and how we burn off the calories. These activities are learned at our mothers’ knees.

Rapid weight gain by low-birth-weight babies (< 2500 g) in the first 4 months of life is associated with an increased risk of being overweight by age 7; 77% of obese children aged 7-13 years remain obese as adults. Suboptimal fetal and infant growth and overnutrition and undernutrition may further contribute to risk of chronic diseases such as obesity, type 2 diabetes, coronary heart disease, stroke, and high blood pressure or hypertension. High-birth-weight babies (> 4000 g) are often born to mothers who are diagnosed with gestational diabetes or are at risk for developing type 2 diabetes. The greatest variation in rates of weight gain in early infancy is when infants may show significant “catch-up” or “catch down” growth. Because early obesity is a predictor for adolescent or adult obesity, there are tremendous implications for early prevention of childhood obesity, including nutrition and safety issues and other bariatric concerns, such as wound healing. We must do something to stem this trend toward obesity, starting right at the beginning of life.

Childhood obesity has multiple causes that include a genetic predisposition and lifestyle habits, such as minimal physical activity and poor dietary habits during pregnancy, and in childhood. Given the escalating costs of healthcare, the increase in childhood obesity in our society will place a bigger burden on an already overextended healthcare system. In addition, these children who are obese will experience a reduced quality of life as they age.

Already, millions of dollars have been expended to present healthy lifestyle and nutritional models to the public. We know that later

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childhood-onset and adult-onset chronic cardiovascular diseases and diabetes are not limited to those in poor financial conditions. The majority of people who are obese, however, are found in low socioeconomic settings where they lack effective coping skills and financial resources to adapt their lifestyle toward what has healthier health outcomes. A large portion lives on social assistance that is barely adequate for subsistence living. Mothers need to have a fixed address before they can access a social assistance check. It is appalling, therefore, that welfare systems ensure that families have access to television sets before providing coupons to ensure healthy eating and active recreation activities.

Our challenge is to at least address the following factors at individual, community, and policy levels to effect desirable changes in lifestyle:

- Low socioeconomic status (LSES) gives rise to social conditions in which access to foods and adequate activity are constrained by low income and lower education of mothers (in particular).
- High stress persists for LSES populations when trying to make ends meet amid limited social support conditions.
- Pregnancy and childbirth occur within a family setting. When resources are scarce, pregnant women often forego feeding themselves if doing so means that their older children will have adequate food, while inadvertently starving the latest family addition.
- Urban and risky lifestyles combined with a LSES foster low activity levels, especially within a culture where the only entertainment may be perceived to be a television set. Walking is eschewed in favor of taking a bus to travel short distances.

Cultural perceptions about the meaning of fatness or thinness are passed down through the generations where they lack effective coping skills and financial resources to adapt their lifestyle toward what has healthier health outcomes. A large portion lives on social assistance that is barely adequate for subsistence living. Mothers need to have a fixed address before they can access a social assistance check. It is appalling, therefore, that welfare systems ensure that families have access to television sets before providing coupons to ensure healthy eating and active recreation activities.

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Cultural perceptions about the meaning of fatness or thinness are passed down through the generations and to new immigrants. Social interactions and support systems, communities, and economic standing level combine with underlying pathophysiology to affect the obesity epidemic in multiple ways. How a person reacts to life stressors affects his or her health and outlook on life. Stress and risky lifestyle behaviors can contribute to illness directly or indirectly. People living with LSES are constantly living under the stress of making ends meet.

Most LSES mothers have views about the definition, cause, and management of obesity that differ greatly from those of most healthcare professionals. This perception gap is even greater between what LSES mothers consider a healthy weight for their children compared with that deemed healthy by healthcare professionals. This gap must be bridged by the professionals. The American Academy of Pediatrics, however, has focused primarily on treatment recommendations and not on combined medical, psychological, and emotional evaluation or barriers to care.

The gap must be better understood to determine how intervention programs can be effectively delivered. One of the barriers to obesity prevention is a lack of practical prevention skills and public health training as regular parts of medical education. A multidisciplinary health team approach to obesity prevention program initiatives is required to address childhood obesity, particularly in the prenatal and early infancy time periods. Little is known about why parents choose to pay attention or to ignore the advice of healthcare clinicians in the areas of obesity prevention, particularly in the younger age group.

New approaches are needed to understand the different perceptions that are held by clients and healthcare professionals. We need to know more about why families seek treatment or where to direct our clinical practice when diagnosing and treating childhood obesity. We need to work with mothers as active partners if interventions are to succeed. It is clear that we need to start preventing obesogenesis from an early age if we are to stem the trend toward obesity and its comorbid conditions. We cannot afford to wait to take action until the children have stopped learning nursery rhymes!

**References**

JWOCN is 32 years old! With that birthday, I step down after 5 short years, and a new team of Mikel Gray, PhD, and Gary Mawyer, Managing Editor, begin their tenure with this fine journal (Figure 1). It hardly seems possible that my term has concluded. It has been an incredible privilege to serve as your Editor, and I will look back on the role with gratitude for the experience and the opportunities it has provided me both professionally and personally. Not only has the Editor grown—so too has your journal, the Journal of WOCN. New ideas and features have been added, especially the Evidence-Based Report Cards, which continue to be a cornerstone. Key Points and more boxes enhance the visual layout and allow quick emphasis of highlights. We have added more commentaries to manuscripts and have continued to highlight clinical issues with the case studies and Challenges in Practice.

My term was launched in January 2001 by a Special Issue on ostomies edited by the then-Section Editor for Ostomies, Kathy Brown, and reader response to special issues has been positive. We published a wounds Special Issue in July 2003 edited by Dr Barbara Pieper, who was, at the time, Section Editor for wounds. This successful special issue was followed by a similarly successful pediatrics Special Issue, edited by the Pediatric Subgroup in July 2004. In this current issue (November 2005), we have a focus on bariatric issues related to wound, ostomy, and continence care. An upcoming special issue on ostomy care is planned for 2006, which is being guided under the watchful eye of the current Ostomy Section Editor, Jan Colwell. We have started including focused industry-supported supplements spearheaded by the Center for Clinical Investigation and by the Lippincott Williams & Wilkins (LWW) Director of Advertising, Greg Pessagno, and Product Advertising, Robert Reed. The first supplement was a fine review of perineal skin care; the most recent, a comprehensive review of treatment of the overactive bladder.

A critical event in the life of JWOCN was the change in 2004 from the previous publisher to LWW and our present Publisher, Ms Beth Guthy. Ms Guthy and her team have guided the JWOCN editorial board, in consultation with the WOCN Society, to an updated proactive journal that has received major positive responses from the readership in terms of layout, color, and pages. Our next important step is to join the ranks of many other healthcare journals and go online for submissions and reviews. This plan is being actively implemented and should be fully active by January 1, 2006. Authors will now be requested to submit manuscripts via an easy, step-by-step uploading process, and reviewers will be requested to submit their reviews online. Such a step is necessary because of the success of JWOCN. With well more than 60 submissions in 2004 (Figure 2) and an expected continuation of that level, the managing of manuscripts has become unwieldy. Now authors will be able to check on the status of their manuscript online in real time with a click of a mouse, using their journal identification number. The new editor and managing editor are currently learning the new online submission and review process from the seasoned publishing pros at LWW, and I anticipate it will make life a lot easier not only for the incoming editorial team but also all our peer reviewers and authors as well.

Clearly, our Section Editors have played a key role in making JWOCN the success story that it is. I personally would like to take this opportunity to thank Dorothy Doughty, current
Section Editor of Wounds; Jan Colwell, current Section Editor of Ostomies; Marta Krissovich, current Section Editor of Continence; Janet Ramundo, current Section Editor of Challenges in Practice; and Joie Whitney, current Section Editor of the Spotlight on Research. But all of us stand on the shoulders of giants, and as such I would like to extend my thanks the previous section editors with whom I had the pleasure of working: Barbara Pieper, Wounds; Kathy Brown, Ostomies; Mary H. Palmer, Continence; and Maureen Hanlon, Challenges in Practice.

The issues currently challenging JWOCN are maintenance of high-quality submissions, encouraging more letters to the editor to enhance scholarly dialogue, and to lobby for registration on the ISI for an impact factor.

I began my first editorial with “The only constant is change.” The same holds true 5 years later—indeed change is probably more likely now than previously. I leave JWOCN in the extraordinarily capable hands of previous director of Center for Clinical Investigation and Section Editor of the Evidence Based Report Cards, Dr Mikel Gray, and I thank wholeheartedly all of those who have made this position as fabulous as it was. Under the leadership of Dr Gray, not only will JWOCN continue to reach heights of clinical and academic excellence and be a credit to the WOCN Society, but also it will change, grow, expand, and raise the bar as a premier nursing journal.

Call for Manuscripts: Special Issue on Ostomy Care

We are currently seeking manuscripts for a special issue on care of the person with an ostomy. Topics may include, but are not restricted to: nursing research related to sexuality, adjustment to an ostomy, ethical considerations, specific clinical strategies in preparing a patient for surgery and follow-up in the community; complications related to stomas such as peristomal hernia, pyoderma, prolapse, necrosis, and mucocutaneous fistula; state-of-the-science review of medical management (including pharmacology) of inflammatory bowel disease and colorectal cancer; support groups; nutritional concerns of the patient with inflammatory bowel disease; and case studies and case challenges.

All manuscripts are peer reviewed and submission does not guarantee publication. The planned publication date is September 2006; deadline for manuscripts is December 15, 2005. Please see author information on www.jwocnonline.com.
Mechanical Bowel Preparation Before Elective Colorectal Surgery

Mikel Gray  ■  Janice C. Colwell

QUESTION 1. Does bowel preparation reduce the risk of surgical complications after elective colorectal surgery?

QUESTION 2. Are serious complications associated with mechanical bowel preparation?

Mechanical bowel preparation describes several protocols used to remove fecal contents from the bowel before elective colorectal surgery. Preparation usually includes dietary restrictions, mechanical cleansing of the bowel with an oral agent or enemas, and antimicrobials to reduce both fecal materials and bacterial counts within the bowel lumen.1 Historically, bowel preparation required up to 5 days, but more contemporary protocols are completed within 1 to 2 days. Although specific protocols vary, they share common elements and are typically completed in the home or outpatient setting. The first limits the diet to clear liquids beginning the morning of the day before surgery or in the afternoon 2 days before the procedure. The bowel is mechanically lavaged using a polyethylene-glycol solution 1 day before surgery, or a sodium phosphate solution is administered during the evening 2 days before surgery and the morning of the day immediately before the elective procedure. Antimicrobial preparation usually includes a macrolide, such as erythromycin, administered within 1 day of the procedure, and parenteral antibiotics given within 1 hour of the creation of the initial incision.

Although specific protocols vary, bowel preparation remains a widely accepted practice among colorectal surgeons in North America.1 Between 1990 and 1997, 100% of 2 cohorts of surgeons from the United States and Canada reported use of some form of mechanical bowel preparation before elective surgery involving the colon.2,3 This practice was also reviewed and ultimately supported as beneficial or at least prudent in 2 comparatively recent literature reviews.1,4 Based on an integrative review of 112 references published between 1975 and 2000, Zmora et al concluded that: “Although some of the use patterns [of mechanical bowel preparation] are based on prospective randomized study, others are founded strictly on habit and theory.”4 Although they acknowledge that data from prospective randomized clinical trials conclude that mechanical bowel preparation may be preferable, they urge caution before recommending adopting this practice based on the limited body of evidence supporting its omission. In contrast, Nichols et al1 were more firm in their conclusion when they stated, “Though recent reports from Europe have called into question the necessity of mechanical cleansing, no clear consensus has been determined, and North American surgeons are steadfast in its continued use.” This conclusion, which relies on a combination of scientific rationale and consensus among colorectal surgeons, is based on an integrative review of 38 references and was published in 2005.

The purpose of this Evidence-Based Report Card is to review existing evidence concerning bowel preparation in the prevention of anastomotic leakage and postoperative wound infection. Evidence was limited to meta-analyses and individual studies directly comparing bowel preparation to no bowel preparation. Observational studies, surveys of practice consensus, and integrative reviews were excluded.

Methods

A systematic review of the MEDLINE, CINAHL, and PubMed databases was completed from January 1996 to August 2005 using the key words “bowel preparation” and “mechanical

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bowl preparation.” The search was then expanded to evidence database tools available through the OVID database search service, including the ACP Journal Club, Cochrane Database of Systematic Reviews, and Cochrane Central Register of Controlled Trials. In addition to searching electronic databases, the ancestry of original research reports and published systematic and integrative reviews were searched for relevant studies. Controlled studies comparing any mechanical bowel preparation with no bowel preparation were included in this review. Systematic reviews and meta-analyses based on systematic review were included, but integrative reviews were excluded. Full research reports were reviewed unless otherwise stated, and foreign-language reports were included only if an English-language abstract was available. Case reports were excluded when considering questions of efficacy, but they were included when reporting potential complications associated with bowel preparation.

■ Question 1: Does Bowel Preparation Reduce the Risk of Surgical Complications After Elective Colorectal Surgery?

Three meta-analyses were identified that directly examined the efficacy of mechanical bowel preparation in preventing complications after elective colorectal surgery. The Cochrane Colorectal Cancer group compared bowel preparation to no preparation based on 9 studies and 1592 subjects. Subjects either underwent mechanical bowel preparation or had no bowel preparation before colorectal surgery, most commonly low anterior resection for colon cancer. The primary outcome examined in this meta-analysis was anastomotic leakage, which was defined as leakage of feces from the surgical anastomosis visualized in the incision or surgical drain. A secondary outcome was also measured that is particularly significant to WOC nursing practice, the incidence of wound infection (defined as the presence of pus at the surgical site). Pooled analysis of these 9 randomized trials revealed that 6.2% of patients who underwent mechanical bowel preparation before elective colorectal surgery experienced anastomotic leakage, compared to 3.2% of those who did not ($p = .003$). However, when the group was stratified into those undergoing low anterior resection for colon cancer and those undergoing other colonic procedures, no statistically significant differences were found. Analysis of the incidence of wound infections failed to reveal statistically significant differences, regardless of whether participants were analyzed as a single group or were divided based on type of surgical procedure. Additional secondary outcomes, including reoperation rates, infectious extra-abdominal complications, and mortality also failed to reveal statistically significant outcomes favoring mechanical bowel preparation. Analysis of the secondary outcome, peritonitis, found that 5.7% of patients undergoing mechanical bowel preparation experienced peritonitis, compared to 2.5% of those who did not undergo preparation ($p = .05$). Based on these findings, the authors concluded that mechanical bowel preparation offers no benefit for patients undergoing elective colorectal surgery. Two findings, overall incidence of anastomotic leaks and peritonitis, favor no preparation.

Bucher and associates completed a meta-analysis based on 7 randomized clinical trials involving 1297 subjects. Each of the studies examined were also included in the Cochrane systematic review discussed previously. As expected, their findings were similar to those of the Cochrane Colorectal Cancer group. Specifically, they found that the incidence of anastomotic leak was higher in patients undergoing mechanical bowel preparation, whereas the incidence of wound infections, intra-abdominal infections (including peritonitis), and reoperation rates were not significantly different, although trends in the data favored no preparation. They concluded that mechanical bowel preparation does not provide a benefit for patients undergoing elective colorectal surgery. They also concluded that existing evidence suggests that bowel preparation may be harmful with respect to the risk for anastomotic leakage without reducing the likelihood of postoperative infectious complications.

Slim and colleagues also completed a meta-analysis of this topic based on pooled analysis of 1454 subjects from 7 trials. Six trials were incorporated into the reviews discussed, and 1 was not included in either. Similar to meta-analyses by the Cochrane group and Bucher and associates, they found that significantly more anastomotic leakage occurred among patients treated with mechanical bowel preparation than those randomized to no preparation, although no statistically significant differences were found in secondary outcomes, including wound infection and intra-abdominal infections. Even though these results were not statistically significant, they also observed that trends in the data favored no bowel preparation. Based on the trials included in this meta-analysis, the authors concluded that mechanical bowel preparation, including bowel cleansing with a polyethylene glycol preparation, is not beneficial to patients undergoing elective colorectal surgery.

Although the results of these meta-analyses demonstrate remarkable similarities, it is nevertheless important to avoid interpreting their findings as cumulative because all 3 are based on a limited number of clinical studies. Table 1 summarizes key elements of the trials included in these 3 meta-analyses.

In addition to the trials included in these systematic reviews, the authors’ search revealed 2 additional randomized clinical trials comparing mechanical bowel preparation with no preparation. Bucher and associates compared mechanical bowel preparation vs no preparation in 153 subjects undergoing left-sided colorectal procedures with primary anastomosis. Seventy subjects were randomized to mechanical bowel preparation, and 75 received no preparation. No subjects who agreed to participate in the
TABLE 1.
Clinical Trials Included in Three Mechanical Bowel Preparation Meta-Analyses

<table>
<thead>
<tr>
<th>Reference</th>
<th>Total Number (N)*</th>
<th>Mechanical Bowel Preparation Group (MBP)</th>
<th>No Bowel Preparation Group (Control)</th>
<th>Anastomotic Leak</th>
<th>Wound Infection</th>
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<tbody>
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<td>Brownson et al8</td>
<td></td>
<td>MBP 198, Control 93</td>
<td>MBP 12%, Control 1%</td>
<td>MBP 6%</td>
<td></td>
</tr>
<tr>
<td>Bucher et al9</td>
<td></td>
<td>MBP 93, Control 47</td>
<td>MBP significantly higher than control (abstract only)</td>
<td>No differences (control)</td>
<td></td>
</tr>
<tr>
<td>Burke et al10</td>
<td></td>
<td>MBP 186, Control 82</td>
<td>MBP 4%, Control 3%</td>
<td>MBP 3%</td>
<td></td>
</tr>
<tr>
<td>Fa-Si-Den et al11</td>
<td></td>
<td>MBP 90, Control 95</td>
<td>Not reported</td>
<td>MBP 10%</td>
<td></td>
</tr>
<tr>
<td>Fillmann et al12</td>
<td></td>
<td>MBP 60, Control 30</td>
<td>Included patients without anastomosis</td>
<td>MBP 3%</td>
<td></td>
</tr>
<tr>
<td>Miettinen et al13</td>
<td></td>
<td>MBP 267, Control 129</td>
<td>MBP 4%, Control 2%</td>
<td>MBP 4%</td>
<td></td>
</tr>
<tr>
<td>Santos et al14</td>
<td></td>
<td>MBP 157, Control 72</td>
<td>MBP 10%, Control 5%</td>
<td>MBP 24%</td>
<td></td>
</tr>
<tr>
<td>Tabusso et al15</td>
<td></td>
<td>MBP 47, Control 24</td>
<td>MBP 21%, Control 0%</td>
<td>MBP 8%</td>
<td></td>
</tr>
<tr>
<td>Zmora et al16</td>
<td></td>
<td>MBP 380, Control 193</td>
<td>MBP 4%, Control 1%</td>
<td>MBP 6%</td>
<td></td>
</tr>
<tr>
<td>Fillmann et al17</td>
<td></td>
<td>MBP 60, Control 30</td>
<td>Not available, foreign language report</td>
<td>Not available, foreign language report</td>
<td></td>
</tr>
</tbody>
</table>

* N includes all subjects enrolled in trial (both completers and dropouts), subgroup numbers include only those subjects who completed the trial.

** Fillmann and colleagues17 was included in only one of the three meta-analyses reviewed in this Evidence-Based Report Card.

study dropped out, and comparison of groups revealed no significant differences in demographic characteristics. Anatomotic leaks occurred in 6% of patients who underwent bowel preparation and 1% of those who did not, a statistically significant difference (p = .021) favoring no bowel preparation. The incidence of abdominal infections, including wound infections, peritonitis, and intraabdominal infections, was 22% among subjects undergoing bowel preparation and 8% in the no preparation group (p = .028), a difference that favored no preparation. Based on these findings, Bucher’s group concluded that patients undergoing left-sided colorectal surgery with primary anastomosis do not benefit from mechanical bowel preparation.

Ram and colleagues19 compared mechanical bowel preparation to no preparation in 329 patients undergoing elective colorectal surgery. A total of 164 participants were randomly assigned to receive bowel preparation, and 165 underwent no preparation. Similar to the other studies reviewed here, Ram and colleagues found that the incidence of wound infection was significantly higher among patients who underwent mechanical bowel preparation than those who did not (9.8% vs 6.1%). However, the incidence of anastomotic leakage was low in both groups, affecting 1% of those randomized to bowel preparation vs 2% of those managed with preparation. This difference was not statistically significant. Based on these findings, the researchers
Although there are sound scientific rationales supporting the concept of mechanical bowel preparation before elective colorectal surgery, direct clinical evidence demonstrates no benefit from preparation when compared to no preparation. (Strength of Evidence: Level 1)

Existing evidence demonstrates a higher incidence of anastomotic leakage in patients undergoing mechanical bowel preparation. (Strength of Evidence: Level 1)

Although rare, individual case studies demonstrate that serious adverse side effects may be associated with mechanical bowel preparation for elective colorectal procedures. (Strength of Evidence: Level 2)

Question 2: Are Serious Complications Associated With Mechanical Bowel Preparation?

Although the review presented here clearly suggests that mechanical bowel preparation may be associated with a higher incidence of anastomotic leakage than no preparation, the authors also sought to determine whether this practice was associated with any serious adverse side effects. Nichols and associates noted a risk for significant metabolic disorders associated with older 5-day preparation regimens, but they also noted that contemporary protocols are limited to 1 or 2 days to increase adherence and diminish this risk. Nevertheless, the authors of the current article located 2 case series reporting serious adverse side effects in patients that were directly attributed to mechanical bowel preparation. Frizelle and Colls reported 3 cases of hyponatremia and seizures after bowel preparation using oral sodium phosphate and sodium picosulfates with magnesium citrate. All of the patients were women, and none had a history of seizure activity. One was elderly (age 75 years), but the others were 64 and 27 years, respectively. None of the women had a history of cardiac disease or renal insufficiency; 2 were hypertensive and managed by pharmacologic agents, and 1 had depression but no eating disorders. Although Nichols and colleagues clearly note that sodium phosphate preparations are contraindicated in patients with cardiac or renal disease, none of these women had such a history and none had a history of seizure disorders. In addition, 4 cases of spontaneous rupture of the esophagus have been linked to mechanical bowel preparation for elective colonoscopy. Three required urgent surgical intervention and all were associated with significant short-term morbidity.

KEY POINTS

✔ Although there are sound scientific rationales supporting the concept of mechanical bowel preparation before elective colorectal surgery, direct clinical evidence demonstrates no benefit from preparation when compared to no preparation. (Strength of Evidence: Level 1)

✔ Existing evidence demonstrates a higher incidence of anastomotic leakage in patients undergoing mechanical bowel preparation. (Strength of Evidence: Level 1)

✔ Although rare, individual case studies demonstrate that serious adverse side effects may be associated with mechanical bowel preparation for elective colorectal procedures. (Strength of Evidence: Level 2)

Implications for Clinical Practice

✔ Bowel preparation before elective colorectal surgical procedures has been a routine procedure for preoperative patients for decades. As the level of evidence supports the omission of the bowel preparation, patients may be able to avoid the unpleasantness and in some cases the noncompliance issues associated with mechanical bowel preparation. It may be enough to allow patients to ingest only a liquid preoperative diet and not spend the evening before the surgery drinking large volumes of the bowel preparation and making multiple trips to the toilet. The night before surgery is filled with anxiety, and the inclusion of unnecessary bowel preparation can add additional discomfort. Because there are some reports that mechanical preparation may cause serious complications, this further evidence should be considered when ordering the bowel preparation.

✔ This systematic literature review demonstrates that routine bowel preparation is based on tradition and by the procedure’s intuitive appeal. Historically, it was believed that bowel preparation decreased the fecal mass and thus bacterial load for the elective surgical intervention. Systematic antibiotic prophylaxis is effective in decreasing septic complications in colorectal surgery; thus, one must clearly question the value of the preoperative bowel preparation in colorectal surgery.

✔ Surgical staff should consider this information when making a decision to keep the patient with an incomplete or inadequate preparation on the schedule. Preoperative mechanical bowel preparation may be indicated only when intraoperative endoscopy is likely.

✔ Because there is no convincing evidence that there is an advantage to mechanical bowel preparation and a positive effect on anastomotic leakage and wound infection could not be demonstrated, avoidance of mechanical bowel preparation should prompt colorectal surgeons and WOC nurses to reevaluate their current practice.

References

Writing a Grant Proposal
Part 6: The Budget, Budget Justification, and Resource Environment

Donna Zimmaro Bliss

The budget and budget justification sections of the grant proposal explain the financial plan for implementing the study. The environmental resource section highlights the pool of resources available to the investigator that will support the proposed research. This sixth and final Spotlight on successful grant writing explains the development of the budget, budget justification, and environmental resource sections of a research proposal. Members of the Center for Clinical Investigation of the Wound, Ostomy and Continence Nurses (WOCN) Society have written this series to promote the submission of grants by WOCN members to the WOCN grants program and to help obtain successful funding.

Budget Components

The budget of a grant proposal describes the costs of implementing the study aims. A budget can be organized into the following major categories: personnel, consultants or technical/supportive staff, supplies, equipment, services, computer hardware and software, postage, photocopying, travel, incentives/compensation for subjects, and miscellaneous. Figure 1 illustrates a sample budget for a hypothetical study in which a survey will be mailed to patients who received a urinary diversion and an interview will be conducted with a subset of survey respondents. The personnel category includes the base salary and fringe rate (ie, non-salary benefits) of the study investigators. These costs are computed using values for each team member’s base salary and fringe rate multiplied by the percentage of their effort that will be spent on the proposed study. Consultants are experts who have specialized knowledge but a more limited role in the study than the investigators. This may be a statistical consultant who assists with planning the study’s design and analysis plan, for example. A consultant may also be an expert in survey construction who will assist in scaling responses to survey questions. The cost for a consultant is typically listed using the hourly rate of pay for providing their expertise. Examples of technical or supportive staff are laboratory technicians who analyze specimens or research assistants who collect or enter data. In some academic institutions, a statistician may also be classified as technical staff. A laboratory technician or statistician may divide his or her time among several research projects. The cost of a shared technical staff member is represented by the percentage of his or her salary and fringe that will be needed to conduct the work or analyses for the proposed study. Research assistants hired to collect data who are students at a university may be paid by the hour or based on a percentage of effort; for example, a 25% position requires 10 hours per week of work; their fringe rate usually includes a tuition benefit.

Supplies and equipment are the materials needed to conduct the study procedures. These are differentiated not by their size but by their cost. A single item that costs $2500 or more is considered equipment in some institutions, regardless if it is a hand-held electronic analytical instrument or a large machine. Examples of supplies in laboratory research are disposable test tubes, chemicals, and beakers used in assays; examples of supplies in survey research are envelopes in which to mail surveys. Each component of supplies and equipment should be listed and priced individually. The service category of a budget includes the cost of paying for a task rather than hiring a person to do the task. For example, when an investigator does not have access to hire a laboratory technician to measure the hemoglobin A1c levels of patients with diabetes in a study of leg ulcers in these patients, they can pay a laboratory to conduct these analyses on a fee-per-sample basis. Paying a data entry company to key the responses to a survey about the effects of leg ulcers on quality of life into a computer software program is another example of a service.

Computer hardware (including printers) and software or digital cameras (if allowed to be purchased with grant
funds) should be listed separately. Software for statistical analysis or qualitative data management is an example of special software that may be permitted.

Calculations for the cost of postage or photocopying pages should be detailed for each piece; for example, the cost of photocopying per page, and the number of subjects who will receive the forms. If the investigator develops data collection forms after funding is received, he or she will need to provide the best estimate of the number of pages to make these calculations. The numbers (eg, of forms, pages, and subjects) used in the budget calculations should be congruent with those reported in the methods section. Travel mileage related to the protocol (eg, to make a home visit to a subject) should be also itemized using standard mileage rates (eg, $.045 per mile). Local travel expenses always exclude usual travel to work or school. Examples of nonlocal travel would be the cost of flying or driving to a national conference to present the findings of the study or to train in a special research skill with another investigator.

Finally, money, gift cards, or other items that will be purchased as incentives or compensation for subjects should be described in terms of their amount and the number of subjects who will receive them. The “miscellaneous” category is for items that do not fit into one of these standard categories. A funding organization may stipulate in its guidelines whether certain types of items are not allowed to be charged to the grant, or it may strike an item unanticipated and disallowed after it reviews the budget. Paying part of an investigator’s salary to conduct the research is an example of a cost that is commonly not allowed in many small foundation grants but is standard in larger federally funded projects.

It is advisable for investigators to obtain real estimates for their budget items so they can adequately cover their costs and complete the project. Munger cautions that any impropriety, such as overestimating or “padding” the budget, questions the credibility not only of the investigator but also of his or her project and sometimes his or her institution. Many grant reviewers are researchers themselves who are familiar with the costs of research and scrutinize budgets carefully. Conversely, underestimating the costs of the budget can cause reviewers to question whether the investigator understands the scope of the project.

Funding agencies want value for their money; therefore, a savvy investigator shows that the project is affordable, as well as has scientific merit, clinical significance, and an innovative approach. Investigators can demonstrate the affordability of their project using one of two approaches. In one approach, the investigator plans a study whose aims can be accomplished within the monetary parameters offered by the grant foundation. For example, the budget of a proposal for the Hollister grant for Continence Nursing would total $7500. This is the simplest approach for the novice investigator. Alternatively, when only a por-

<table>
<thead>
<tr>
<th>Personnel</th>
<th>Title/Role</th>
<th>% Effort on Project</th>
<th>Yearly Base Salary</th>
<th>Salary Requested</th>
<th>Fringe Benefit</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jane Smith, RN, BSN, CWOC</td>
<td>Research program specialist: to interview 40 patients</td>
<td>25% × 1 yr.</td>
<td>$30,000</td>
<td>$7,500</td>
<td>$1,875</td>
<td>$9,375</td>
</tr>
<tr>
<td>Consultant</td>
<td>Survey construction consultant</td>
<td>Hourly Rate $40</td>
<td>Total hours 15</td>
<td></td>
<td></td>
<td>$600</td>
</tr>
<tr>
<td>Services</td>
<td>Data Entry of survey responses</td>
<td>250 surveys at 98% accuracy</td>
<td></td>
<td>$1,300</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supplies</td>
<td>Envelopes to mail surveys</td>
<td>250 surveys × .20/envelope</td>
<td>$50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Photocopying</td>
<td>Text about survey research</td>
<td>$95</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incentives</td>
<td>$5 gift card</td>
<td>250 survey recipients × $5 each</td>
<td>$1,250</td>
<td>$13,265</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

FIGURE 1. Selected example budget components of a hypothetical grant to survey and interview patients about psychological adjustment and complications after receiving a urinary diversion.
tion of a larger or more expensive study can be completed for the funds offered by a grant program, the investigator can delineate which aim(s) and outcome(s) can be expected for the funds requested. The investigator must explain any scientific or financial overlap (ie, duplication) of the proposed study with other grants that have been received or are pending. Because of the increasing needs and competition among proposals and resource limitations of funding organizations, many organizations will not fund studies with significant overlap. However, there are often numerous parts to a research question that can be investigated using different funding awards; a novice investigator who seeks to use this approach may benefit from consulting an experienced nurse researcher.

**Budget Justification**

Justifying the need for the items listed in the budget is an important part of the grant. The savvy investigator addresses all items in the budget and explains why they are essential to the conduct of the research. The justification need not be complicated or long, but it should be accurate and convincing. An example justification for purchasing a digital camera would be to photograph skin damage of patients with perineal dermatitis to achieve the outcomes of documenting the severity and stages of healing of the damage. In some cases, the investigator may be prudent to explain why an item needs to be purchased as part of the grant; for example, if a computer is needed, the investigator should explain that he or she does not have access to a computer as part of his or her employment.

The justification of study personnel is an opportunity to showcase the expertise that each team member has and why that expertise is critical for implementing the study. Each team member should make a unique contribution to the study. In addition to clinical certification, academic degrees, and length of professional experience or research, special accomplishments, knowledge, or training relevant to the study can be featured. For example, if the investigator completed a training seminar in conducting focus groups, such training would be seen as a strength in a study whose methods involved focus groups. This section is also a place in which to demonstrate previous collaboration among the team members. Noting coauthored publications or joint committee work or service projects by key personnel gives evidence of the ability of the team to complete a project and work well together.

**Resource Environment**

The resource environment section describes the resources accessible to the investigator that will facilitate their research. Even if a small grant does not explicitly request this section, key points can be intertwined in parts of the budget justification. An example is when an item needed for the research, such as a computer or statistical software, is made available to the investigator to use. Consultation of a clinical expert in the investigator’s institution that will be donated is a second example. “Boiler plate” or readily available generic information has limited use, perhaps in a description of the institution. The savvy investigator customizes his or her listing of available resources to those directly related to the project and also describes how he or she uses them. For example, having access to a clinic examination room would be a significant resource for a study that involved assessing leg ulcers of patients with diabetes.

In conclusion, the budget and budget justification are integral parts of a grant proposal that are instrumental in showing the value and requirements of implementing the project. The accuracy and detail of the budget and persuasiveness and clarity of the justification reflect on the investigator’s competence and care with which he or she prepared his or her proposal. In the resource environment section, the investigator has an opportunity to showcase additional strengths that will facilitate the success of his or her study.

**KEY POINTS**

- The budget presents the costs associated with conducting the proposed research with accuracy and sufficient detail.
- The budget justification explains why the items listed in budget are essential to conduct the proposed study.
- The qualifications, expertise, and contributions of the research team, as well as their ability to collaborate, are highlighted in the justification of study personnel.
- In the resource environment section, the investigator explains the available resources that will facilitate his or her research.

**Reference**

Foot ulcers are a common, serious, and costly complication of diabetes, preceding 84% of lower extremity amputations in diabetic patients and increasing the risk of death by 2.4-fold over diabetic patients without ulcers. Health-related quality of life (HRQOL) is worse among individuals with diabetes than individuals without diabetes, and complications of diabetes, including foot ulcers, have a major negative effect on HRQOL. Diabetic foot ulcers are associated with reduced mobility and deficits related to activities of daily living that adversely affect HRQOL. Qualitative studies have confirmed clinical observations that diabetic foot ulcers have a huge negative psychological and social effect, including reduction in social activities, increased family tensions for patients and their caregivers (spouses or partners), limited employment, and financial hardship. Quantitative studies confirm the findings of qualitative studies that diabetic foot ulcers exert a negative effect on physical functioning, psychological status, and social situation. Recent advances include the development and validation of disease-specific HRQOL surveys for diabetic patients with foot ulcers. Disease-specific surveys may improve the evaluation of HRQOL as a function of ulcer healing, the effect of different treatment methods on HRQOL, and the relationship between treatment-specific HRQOL, patient compliance, and treatment efficacy.

Healthcare providers have a key role in evaluating and improving wound care. Clinical trials that evaluate treatment rely heavily on objective medical assessments, such as mean healing time, wound closure, and exudate absorption. However, the subjective perspective of the patient is also important, because it may affect patient compliance with treatment and satisfaction with the result. This has been addressed recently by the development of the concept of health-related quality of life (HRQOL), defined as the sum of the physical, emotional, and social issues in a person’s life that may be affected by, or may affect, a health issue. HRQOL may include factors such as physical health, pain, mobility, emotional state, dependence on others, difficulty with usual activities, and living conditions. It has been demonstrated that both health professionals and partners may underestimate HRQOL compared to patients. Therefore, a complete rating of the effect of an intervention on the patient’s life must include information from the patient. Several surveys have been developed and used to evaluate the effects of many different diseases on HRQOL.1

Foot ulcers are a common, serious, and costly complication of diabetes. The prevalence of diabetes worldwide was estimated to be 4.0% in 1995 and is projected to rise to 5.4% by the year 2025. The number of people with diabetes will increase by 122%, from 135 million in 1995 to 300 million in 2025. Approximately 15% of all persons...
with diabetes will develop a foot ulcer at some point during their life.6 Diabetic foot ulcers increase the risk of death by 2.4-fold over diabetic patients without ulcers.7 Diabetic foot ulcers may result in significant decrements in quality of life, including decreased mobility, falls, increased dependence on others, loss of employment, reduced income, increased risk of amputation, repetitive trips to the physician or clinic for care, and increased expense. Adherence, or the extent to which a person’s self-care practices coincide with medical or health advice, is significantly affected by quality of life.8,9 Anger with healthcare providers and depression are predictive of poorer adherence to foot care recommendations.10 Innovative prevention and management strategies are needed to address these issues in a manner acceptable to patients.

Despite the severe effect of diabetic foot ulcers on quality of life, which may potentially affect attendance at clinic and adherence to medical advice,11 there has been only limited study of HRQOL in these patients. Given the projected increase in persons with diabetes, this is an area of pressing need. The purpose of this article is to review the available studies of HRQOL in diabetic patients with foot ulcers. Two electronic databases—Cumulative Index of Nursing and Allied Health Literature (CINAHL) (August 1980-August 2004) and Medline (August 1980-August 2004)—were searched using key words. The search strategy used was “diabetic foot ulcers” OR “diabetic foot ulcerations” OR “diabetic foot lesions” OR “diabetic neuropathic ulcers” AND “quality of life” OR “health-related quality of life.”

Diabetic Foot Ulcers

A diabetic foot ulcer is characterized by skin and tissue loss that extends into or through the dermis to deeper tissue as a result of complications from diabetes.1 Diabetic foot ulcers typically result from loss of protective sensation resulting from diabetic peripheral neuropathy and repetitive mechanical trauma associated with poorly fitting shoes and deformity. Forty percent of lower extremity amputations in diabetic patients are the result of complications related to a foot ulcer.12

Diabetic neuropathy and peripheral vascular disease are the main etiologic factors that contribute to the formation of diabetic foot ulcers and may act in combination with other factors, such as deformity, limited joint mobility, microvascular disease, and increased susceptibility to infection.13 A critical triad consisting of neuropathy, minor foot trauma, and foot deformity is present in more than 63% of patients with ulcers.14 Risk factors for ulcer development include male gender, duration of diabetes greater than 10 years, 1 or more subjective symptoms of neuropathy, and a history of amputation or lower extremity bypass surgery.15

Health-Related Quality of Life: Effect of Ulcer

HRQOL is an important outcome in understanding the effect of illness and the effectiveness of patient care, and it supplements traditional outcomes measures, such as morbidity and mortality.16 HRQOL is a multidimensional construct comprising the individual’s subjective appraisal of physical, emotional, and social well-being, including cognitive (satisfaction) and emotional (happiness) components.17 Numerous studies have used the concept of HRQOL as a dependent variable, but there has been little research that explicitly links clinical variables to measures of HRQOL or attempts to determine the intervening variables that mediate these effects, largely because theory development and conceptualization of HRQOL have lagged far behind instrument development.18

Major advances have been made by quantitative researchers in the development of QOL instruments, with more than 1,000 generic QOL and HRQOL instruments being available.19 Table 1 outlines the salient features of the most widely used HRQOL instruments. Ongoing debate continues, however, regarding the validity of these tools in the face of limited theoretical development. Qualitative approaches to HRQOL contribute to a more in-depth understanding of the phenomenon under study and are especially useful when little is known about that phenomenon.11,20

The HRQOL of people with diabetes has been extensively examined. HRQOL is rated lower among people with diabetes than in the general population, particularly regarding physical functioning,21,22 but better than it is among those with most other chronic conditions.23,24 Sociodemographic variables associated with poorer HRQOL in persons with diabetes include advancing age,25,26 female gender,17,24 and lower socioeconomic status.27,28 There is substantial evidence, however, that the most important variable affecting HRQOL of people with diabetes is the presence of complications.25,29,30 The following sections describe studies specifically examining HRQOL in persons with the complication of a diabetic foot ulcer. Table 2 summarizes the studies reviewed.
### TABLE 1.
**Generic Quality-of-Life Instruments**

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Authors</th>
<th>No. of Items</th>
<th>Domains/Subscales</th>
<th>Rating</th>
<th>Score(s) Derived</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Outcomes Scale SF-36</td>
<td>Ware &amp; Sherbourne (1992)</td>
<td>36</td>
<td>Physical Functioning, Role, physical Bodily pain, General health, Vitality, Social functioning, Role, emotional Mental health, Health transition</td>
<td>Close-ended responses</td>
<td>Two: Physical Component Summary Mental Component Summary</td>
<td>The most widely used generic scale of quality of life (QOL). Comparative data available for many countries and disease states.</td>
</tr>
<tr>
<td>SF-12</td>
<td>Gandek, Ware, Aaronson, Alonso, Apolone, Bjorner et al. (1998)</td>
<td>12</td>
<td>Physical Functioning, Role, physical Bodily pain, General health, Vitality, Social functioning, Role, emotional Mental health, Health transition</td>
<td>Close-ended responses</td>
<td>Two: Physical Component Summary Mental Component Summary</td>
<td>One or two items per domain taken from SF-36. Able to achieve high degree of correspondence with SF-36.</td>
</tr>
<tr>
<td>EuroQol (EQ-5D)</td>
<td>The EuroQol Group</td>
<td>5</td>
<td>Mobility, Self-care, Usual activities, Pain/discomfort, Anxiety/depression</td>
<td>3-point Likert scale (no problems, some problems, severe problems)</td>
<td>One (score range -0.0594 to 1)</td>
<td>Also contains an item on whether present health state is better, much the same, or worse than the general level of health during the past 12 months and a 100-point single visual analog scale for health state today</td>
</tr>
<tr>
<td>Nottingham Health Profile</td>
<td>Hunt, McKenna, McEwen, et al</td>
<td>38</td>
<td>Energy, Bodily pain, Emotional Status, Sleep, Social isolation, Physical mobility</td>
<td>Yes/no responses</td>
<td>Six (Score range 0 to 100)</td>
<td>0 represents the best possible QOL and 100 is the worst possible QOL; opposite of most QOL scales</td>
</tr>
<tr>
<td>Visual Analog Scale (VAS); QOL Ladder</td>
<td>No single author; long history in psychometric research and health measurement</td>
<td>Varies</td>
<td>Varies—often includes overall rating of QOL, but may include specific ratings of physical, emotional, social, cognitive, spiritual domains</td>
<td>0 to 10 or 0 to 100</td>
<td>Single</td>
<td>Can be difficult to interpret in absence of longitudinal data for an individual; numbers intended to replace verbal descriptors; problems experienced in use with elderly patients (Giorgi et al, 1996)</td>
</tr>
<tr>
<td>Title of Study</td>
<td>Study Authors</td>
<td>Sample Characteristics</td>
<td>Variables Studied</td>
<td>Tools Used</td>
<td>Study Findings</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------------------------------------------</td>
<td>--------------------------------</td>
<td>----------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Psychological status of diabetic people with or without lower limb disability (1996)</td>
<td>Carrington, Mawdsley, Morley, Kinsey, Boulton</td>
<td>13 British patients with diabetic foot ulcers (DFUs); 69% male; age range 43-70 13 British patients with unilateral lower limb amputation; 69% male; age range 42-72 26 diabetic controls with no history of DFUs; 69% male; age range 47-71</td>
<td>Adjustment to illness Anxiety and depression Quality of life (QOL) Attitudes toward feet</td>
<td>Psychological adjustment to illness scale (PAIS) Hospital anxiety and depression scale (HAD) QOL Ladder Foot Questionnaire (12 pairs of opposites rated on a 7-point scale examining attitudes and feelings toward feet)</td>
<td>Psychological status of mobile amputees better than that of DFU patients but not as good as controls. DFU patients were more depressed and had poorer psychosocial adjustment than controls.</td>
<td></td>
</tr>
<tr>
<td>QOL issues in patients with diabetes and lower extremity ulcers: patients and caregivers (1998)</td>
<td>Brod</td>
<td>14 patients with DFUs; 57% male; mean age 57 11 caregivers; 45% male; mean age 50</td>
<td>Impact of lower extremity ulcers on QOL</td>
<td>Semi-structured interviews focusing on 4 domains: social, psychological, physical, and economic</td>
<td>Patients and caregivers experienced negative impact on all QOL domains because of limitations in mobility</td>
<td></td>
</tr>
<tr>
<td>Health-related quality of life in patients with diabetes mellitus and foot ulcers (2000)</td>
<td>Tennvall and Apelqvist</td>
<td>310 Swedish patients treated for foot ulcers by a multi-disciplinary team between 1995 and 1998; 66% male; mean age 67</td>
<td>Foot ulcer status (current, primary, minor amputation, major amputation), type of ulcer, other complications, age, sex, diabetes duration, insulin treatment, type of diabetes QOL</td>
<td>EuroQOL (EQ-5D) including a visual analog scale (VAS) rating of present health</td>
<td>Patients with current foot ulcers rated HRQOL and VAS lower than those who had healed or with minor amputations. EQ-5D scores were lower for patients with a major amputation than a current foot ulcer, but VAS scores were higher for amputees.</td>
<td></td>
</tr>
<tr>
<td>Perception of QOL by patients with diabetic foot ulcers (2000)</td>
<td>Ashford, McGee, Kinmond</td>
<td>21 British patients attending an outpatient clinic for people with diabetic foot problems; 71% male; age range 49-75</td>
<td>QOL issues expressed by patients with DFU</td>
<td>Phenomenological approach using qualitative interviews</td>
<td>Many patients seemed willing to accept the consequences of ignoring advice from healthcare providers. Eleven of the 14 patients of working age either lost or had to give up their jobs. Just less than half reported pain from the DFU. All patients reported reduced mobility.</td>
<td></td>
</tr>
</tbody>
</table>
Effect of Diabetic Foot Ulcers on Physical Functioning

The negative effect of diabetic foot ulcers on HRQOL results in large part from reduced mobility. The loss of mobility directly affects the individual’s ability to engage in common everyday tasks and to participate in leisure activities. Semistructured interviews conducted within focus groups have shown that patients with diabetic foot ulcers and their caregivers experience a profoundly negative effect on all domains of QOL (physical, psychological, social, and economic) as a result of the limitations in mobility caused by the ulcer.20 Altered mobility and activity levels may contribute to a perception of diminished health status and reduction in HRQOL.38 Interviews of 21 subjects with diabetic foot ulcers showed that reduced mobility was associated with either ulcer pain (reported in approximately 50% of subjects) or feelings of anxiety and vulnerability because of the potential for further trauma to the foot.11

Deficits related to activities of daily living may also compromise HRQOL. Compromised mobility and the need to keep the foot dressing dry may limit self-care activities, such as bathing, and patients report loss of self-esteem related to altered hygiene patterns.11

Quantitative studies confirm the findings of qualitative studies that diabetic foot ulcers exert a negative effect on physical functioning. A study of 310 diabetic patients who had been treated for a foot ulcer showed that patients with a current unhealed ulcer had significantly lower HRQOL than those who had healed without amputation, based on significant differences among the 2 groups in both

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Effects of Diabetic Foot Ulcers on Psychological and Social Factors

Qualitative studies have confirmed clinical observations that diabetic foot ulcers have a huge negative psychological and social effect. In 21 diabetic patients with ulcers, individuals reported a sense of the loss of the life they had experienced before the ulceration and an associated loss of “sense of self.”

Four psychological conditions that may result from having an ulcer may exacerbate this loss of self: living a restricted life, existing in social isolation, experiencing discredited definitions of self (ie, loss of self-defining behaviors, such as bathing ability or ability to dance), and becoming a burden. The requirement to wear special footwear as a component of intervention also undermined self-esteem, particularly in women. In another group of 14 diabetic patients with foot ulcers, the predominant emotions expressed were frustration, anger, guilt, and, to a lesser intensity, depression and social isolation.

Reduction in social activities and increased family tensions may be problematic not only for diabetic patients with foot ulcers, but also for their caregivers (spouses or partners). These patients may view dependence on others, especially family members, as problematic because of the greater demands placed on others to assume tasks not otherwise performed. Furthermore, patients with ulcers may feel unable to fulfill wider social roles, such as playing with young children.

Employment is often markedly affected by the presence of the diabetic foot ulcer or associated treatment, and financial hardship is a major issue for many of these patients. The majority (50-79%) of patients with diabetic foot ulcers are unemployed, have retired early, or are unable to work because of the ulcer. Job requirements, such as weight-bearing activities and safety footwear (ie, steel-capped boots), may compromise the foot condition; thus, patients with sedentary jobs, such as desk jobs, or those who can be retrained for sedentary work are more likely to remain employed. Cohabitant caregivers typically lose time from work to care for patients and transport them to clinic visits, and some caregivers continue to work after retirement age because of expenses associated with caring for the patient with the ulcer.

Attitudes and self-care practices of diabetic patients with foot ulcers may be different for men and women. In a qualitative study (individual and focus group interviews) of 39 patients (23 men and 16 women) with a history of foot ulcer, a higher degree of self-efficacy was demonstrated in patients who had no history of foot problems showed that patients with ulcers had markedly and significantly lower scores in the SF-36 survey for physical functioning (p < .001) and physical role (p < .001).

The majority (50-79%) of patients with diabetic foot ulcers are unemployed, have retired early, or are unable to work because of the ulcer.

Another study comparing 14 diabetic patients who had foot ulcers (healed and unhealed but stable) and 24 diabetic patients who had no history of foot problems showed that ulcer patients had markedly and significantly lower scores in the SF-36 survey for physical functioning (p < .001) and physical role (p < .001).

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women, who were more active in self-care and preventive care, searching for information, and trying to adapt to the situation. In contrast, men more often sought help for acute problems, had a pessimistic view of the future, showed a passive attitude, and used more complementary care from nonprofessional providers, such as wives. In another study, patients (71% male) reported awareness of the importance of foot care, yet many took risks and seemed willing to accept the consequences of ignoring professional advice. Risk-taking behaviors were documented in a phenomenologic study of diabetic patients; some individuals deliberately chose, on occasion, to rebel by engaging in behavior they knew to be foolish, dangerous, and detrimental to their well-being. Patients may believe that their professional care is impersonal and fragmented, and attention by healthcare professionals to the emotional needs of patients may decrease the negative effect of the ulcer on QOL.

Quantitative studies have confirmed that diabetic foot ulcers are associated with detrimental psychological and social consequences. Diabetic patients with unhealed foot ulcers scored significantly worse than diabetic patients with healed foot ulcers on social functioning (SF-36 questionnaire; p < .05), psychosocial adjustment to illness (Psychosocial Adjustment to Illness Scale; p < .05), depression (Hospital Anxiety and Depression scale; p < .05), life dissatisfaction (Quality of Life Ladder; p < .05), and attitude toward the foot (Carrington Foot Questionnaire; p < .05). In fact, patients with diabetic foot ulcers had a significantly more negative attitude toward the foot than diabetic patients with unilateral lower limb amputation (p < .05). Problems with anxiety and depression were reported by 70% of patients with unhealed diabetic foot ulcers, compared with 43% of patients with healed diabetic foot ulcers and 46% of patients who had undergone a major amputation.

Recent Advances in Measurement of HRQOL in Patients With Diabetic Foot Ulcers

Disease-specific health surveys have been described for the measurement of HRQOL in diabetic patients with foot ulcers (Table 3). Studies using generic measures of HRQOL, such as the SF-36, in which individuals are asked to evaluate their physical, social, and mental functional status in general terms, are useful to compare QOL between different diseases. However, some general QOL questionnaires, such as the mental component of the SF-12, are not sensitive to the presence of an ulcer or changes in ulcer status. Disease-specific surveys may provide a better comparison of the effect of different clinical interventions on HRQOL.

The Diabetic Foot Ulcer Scale (DFS) is a questionnaire of 58 items (grouped into 15 subscales) that was developed from interviews and group discussions with patients with foot ulcers and caregivers. The DFS has good internal consistency, adequate test-retest reliability, and sensitivity to change in wound status over time. Patients with healed ulcers have significantly higher scores on leisure, medicine effect, daily life, emotions, and medical behavior subscales than those with unhealed ulcers. Furthermore, patients with larger ulcers have lower scores on leisure, daily life, dependence, and family life subscales than patients with smaller ulcers.

A shorter version of the DFS, the Diabetic Foot Ulcer Scale—Short Form (DFS-SF), is a 29-item questionnaire comprising 6 subscales: leisure, physical health, dependence/daily life, negative emotions, worries about ulcers/feet, and bothered by ulcer care. Internal consistency of the subscales was excellent, with α ranging from a minimum of 0.80 for the bothered by ulcer care subscale to a maximum of 0.95 for the negative emotions subscale. Construct validity was measured comparing DFS-SF scales and SF-36 subscales. Correlations ranged from 0.24 to 0.62, with related scales (such as the DFS-SF physical health and SF-36 vitality) demonstrating higher correlations. To establish a lower limit for test-retest reliability, intraclass correlations resulted in estimates ranging from 0.47 (bothered by ulcer care) to 0.74 (dependence/daily life). The authors suggest that these results are promising, particularly because these are only the lower bounds of subscale test-retest reliability. Furthermore, the DFS-SF subscales are sensitive to ulcer healing, and subjects with a healed ulcer have significantly higher DFS-SF scores on all 6 subscales than patients with unhealed ulcers.

The NeuroQOL is another questionnaire that was developed to measure QOL associated with diabetic peripheral neuropathy and foot ulcers. The NeuroQOL consists of 28 items assessing 5 scales: (1) painful symptoms and paresthesia, (2) symptoms of reduced or lost feeling in the feet, (3) diffuse sensorimotor symptoms, (4) limitations in daily activities, and (5) interpersonal-emotional burden. All 5 scales, except the scale for painful symptoms and paresthesia, are significantly associated with ulcers. Inter-item reliability of the scales ranged from 0.86 to 0.96, with modest floor effects (14.4%-28.4% of respondents had the minimum possible scale score) and similar ceiling effects (0.5%-19.0% of respondents had the maximum possible score). Construct validity analyses compared the NeuroQOL physical symptoms measure with the SF-12 Physical Component Summary (PCS) Score and the NeuroQOL psychosocial functioning measure with the SF-12 Mental Component Summary (MCS) Score. The NeuroQOL and SF-12 PCS mediated the relationship of neuropathy disability (ie, the measures captured a greater portion of the relationship between neuropathy and QOL as measured by the one-
In summary, diabetic foot ulcers have a major negative effect on HRQOL. However, studies are limited and disease-specific health surveys have only recently been developed. Future longitudinal studies may be useful in assessing HRQOL as a function of evolution and healing of an ulcer.
Fifteen percent of all persons with diabetes mellitus will develop a diabetic foot ulcer, a serious complication that significantly increases the risks of amputation and mortality.

The number of patients experiencing diabetic foot ulcers will rise dramatically during the coming decades as the number of people with a diagnosis of diabetes increases.

Health-related quality of life, a multidimensional construct comprising the individual’s subjective appraisal of physical, emotional, and social well-being including cognitive (satisfaction) and emotional (happiness) components, is an important outcome in understanding the effect of illness and the effectiveness of patient care.

Diabetic foot ulcers have a negative effect on all aspects of health-related quality of life, particularly on the physical domain as a result of decreased mobility.

Several new surveys specific to assessing health-related quality of life of people with diabetic foot ulcers have been developed and may be appropriate to include in nursing assessments of this population.

References

Care of the Obese Patient With an Ostomy

Janice C. Colwell  ■  Alessandro Fichera

Obesity has become the number one health problem in the United States. The patients who are obese and undergoing a surgical procedure that results in the formation of fecal or urinary diversion requires advanced skills of a multidisciplinary healthcare team. Patients who are obese carry a high risk of wound and cardiopulmonary complications and often present a serious challenge in terms of stoma creation and management. The purpose of this article is to examine the risk factors that face the patient who is obese and undergoing stoma surgery, the challenges of stoma creation, and the resultant stoma management problems.

A n estimated 97 million American adults are overweight or obese, making this the most common health problem in the United States.1 The increasing incidence of obesity and the clear association between obesity and certain cancers, including colorectal and urinary,2 make it common for healthcare providers to face the difficult tasks of managing patients who are obese with a fecal or urinary diversion. Patients who are obese carry a higher risk of wound and cardiopulmonary complications along, with a higher incidence of comorbid conditions affecting surgical outcomes. Managing a patient who is obese and has an ostomy requires advanced skills, and it is important that healthcare professionals understand the issues involved. Changes in surgical timing and strategies are often needed to achieve optimal results in this challenging group. This article examines the implications of caring for the patient who is obese and has an ostomy.

Stoma Site Selection

Stoma site selection is a critical factor that contributes significantly to a positive outcome in a person with a stoma.3-5 Considerations in siting a stoma include placement in an area that is free from creases and folds for at least 2 to 3 inches, a location in an area that the patient can visualize and provide self-care, an area away from bony prominences, an area within the rectus abdominis muscle, and, if possible, under the belt line to allow clothing to conceal and support the pouching system.6 An additional consideration in the patient who is obese is placement of the stoma in the least technically challenging location, because excessive tension on the mesentery can cause retraction, necrosis, and stenosis.

When siting a stoma, the wound, ostomy, and continence (WOC) nurse should evaluate the patient in several different positions. First, the rectus muscle should be identified. It is generally recognized that placement of the stoma through the rectus muscle helps preventing the development of a peristomal hernia.

When siting a stoma the WOC nurse should evaluate the patient in several different positions. First, the rectus muscle should be identified. It is generally recognized that placement of the stoma through the rectus muscle helps to prevent the development of a peristomal hernia. Typically, the rectus muscle is identified in a lying position while patients lift their heads and shoulders from the examination table. Because of excessive abdominal adipose tissue in the patient who is overweight, this technique may not easily identify the rectus muscle.
muscle. Other methods for identifying the rectus muscle include leaning the person forward as he or she is in a sitting position while viewing the abdomen or following the nipple line downward because this can approximate the location of the lateral edge of the rectus muscle.

The patient should be examined in a sitting position with feet flat on the floor. The chosen stoma site is examined for creases or folds using a stoma-marking guide. It is preferable to have a 2-inch to 3-inch flat area of skin in the area surrounding the stoma. Once a site for the stoma is selected, this area should be visualized while the person is supine and standing. A person with a large abdomen may have large shifts of tissue when in various positions, and a flat area when sitting may become creased or out of the patients’ view when standing. In some instances, it may be prudent to mark more than one stoma site, because the location of the stoma (right or left, high or low) may change once the surgeon enters the abdomen (Figure 1). As a general principle, siting a stoma higher on the obese abdomen should allow the person good visualization of the stoma and accessible care. A stoma lower on the abdomen in a flat area may make it impossible for the person who is obese to see the stoma to place the pouching system.

Surgical Issues

Abdominal surgery, either conventional or laparoscopic, in morbidly obese patients is more time consuming and demanding than it is in the general population. Several studies have shown an association between elevated body mass index (BMI) and increased incidence of intraoperative and postoperative complications, including intraoperative blood loss, anastomotic failure, and septic complications.

Creating either a loop or a Brooke ileostomy or a permanent or temporary colostomy in a patient who is morbidly obese is technically challenging. Stoma-related complication rates have been reported as high as 36%, with obesity being one of the risk factors for stoma failure. The technical difficulty is caused primarily by mechanical factors: the foreshortened mesentery and the thick layer of the subcutaneous fat through which the intestine has to be placed. Several techniques have been developed to obviate this problem, including local liposuction and subcutaneous lpectomy with marginal results.

From a surgical perspective, a distinction has to be made not so much between ileostomies and colostomies but rather between loop and end stomas and also between temporary and permanent stomas. Tension on the mesentery is an important factor when performing an end stoma, especially when permanent. The surgeon has to deal with a thick foreshortened mesentery that has to be delivered through a large subcutaneous layer. It is important not to open the rectus abdominis muscle too widely to prevent parastomal hernias, another common complication seen especially in patients who are obese. Conversely, a narrow fascial opening can cause either a tear in the mesentery, leading to hemorrhage, or tension and compression on the mesentery with consequent ischemia, separation, retraction, and stenosis.

At the other end of the spectrum is the temporary loop stoma after a low anterior resection (LAR) or an ileal pouch anal anastomosis (IPAA). The mesentery is delivered between the two loops and hence less likely to be torn. Tension remains an issue that can cause retraction and difficulty pouching the stoma, but temporizing measures (ie, convex appliances) are effective for the short period that the stoma is needed. Finally, the size of the fascial opening, although wide to accommodate the 2 loops, is less critical, because it will be closed under direct vision at the time of the ileostomy takedown.

To avoid serious complications and the need for multiple revisional surgeries, with increased morbidity, mortality, and costs, meticulous preoperative evaluation and strategy, and a multidisciplinary team approach are mandatory.
cancers\textsuperscript{2} but also with a decreased likelihood of sphincter preservation and a higher chance of local recurrence in the male patient who is obese and has rectal cancer.\textsuperscript{18} These patients should therefore undergo weight-reduction surgery first to maximize the chances of sphincter preservation and avoidance of a permanent stoma, to decrease local recurrence, and to improve survival.

Patients who are obese and have ulcerative colitis referred for IPAA should also be advised to undergo weight-reduction surgery; in these cases, a laparoscopic gastric banding is preferred because the entire intact small bowel is required for a successful IPAA. If the long-term use of corticosteroids is mainly responsible for the increased BMI, patients should undergo a staged procedure. First, they undergo an abdominal colectomy with a temporary end ileostomy to allow them to discontinue the corticosteroids to facilitate weight loss. A goal of a BMI of less than 25 should be mutually agreed with the patient before proceeding for the IPAA to maximize the chances of a functional pouch and thus avoiding a permanent stoma.

When surgery is indicated for ostomy-related complications or for repair of a parastomal hernia in a patient who is obese, a reduction in BMI is a prerequisite for a successful outcome and referral to an effective weight-reduction program or weight-reduction surgery is indicated.

Several studies have confirmed the feasibility of laparoscopic colorectal surgery in patients who are obese.\textsuperscript{11,19} These series, however, have also shown an increased conversion rate, up to 23.7\% in one series\textsuperscript{11} prolonged hospital stay, high anastomotic failure rate, and overall higher incidence of postoperative complications when compared to patients who are not obese.\textsuperscript{11,19} These studies basically confirm that the patient population that is obese is at increased risk of complications, irrespective of the surgical approach used. Smaller laparoscopic incisions should help in reducing the incidence of incisional hernias in this patient population, as postulated in these studies, but this outcome has not been supported. This hypothetical benefit is obtained at the cost of a longer operation and significant morbidity. Laparoscopic stomas in a patient who is obese represent an even greater challenge than in open surgery, because of the limitation in the ability to gently manipulate the intestine through the abdominal wall. Careful patient selection remains the key to success in laparoscopic approaches.

\section*{Ostomy Patient Care Issues}

\subsection*{Postoperative Complications}

Postoperative complications after abdominal surgery more common in the patient who is obese than in the general population include difficult airway management, often resulting in failed extubation, anastomotic failure, infection not limited to the surgical wound, cardiovascular events, deep venous thrombosis, and pulmonary embolism.\textsuperscript{1} In a study by Thomas et al,\textsuperscript{14} examining the relationship of BMI and postoperative complications, they found that over-weight patients who underwent abdominal procedures had higher wound infection rates and significantly higher adjusted total costs. Laparoscopic procedures done on the patient who is obese generally result in increased rates of conversion to laparotomy.\textsuperscript{11,19}

In 2 studies that looked at the effect of BMI on patients undergoing radical cystectomy they found that an increased BMI had an increased estimated blood loss and operative time.\textsuperscript{9,20} Obesity should be considered a risk factor that can influence poor outcomes in the patient undergoing an abdominal surgical procedure. Specific stoma complications follow.

\subsection*{Pouch Emptying}

The majority of patients using a drainable pouching system empty the pouch while sitting on the toilet, draining the output from the pouch between their legs into the commode. After emptying the effluent into the toilet, the end of the pouch is cleaned with toilet tissue before closing. It may be difficult for the person who is obese to lean far enough to allow the tail of the pouch to drain into the toilet. In this situation, several alternatives should be considered. A 2-piece pouching system can be used, the pouch removed from the flange, emptied into the toilet and reapplied. A closed-end pouch can be used, removed and discarded, replacing the pouch. Another alternative is the use of a pouch liner (Colomajic Liners, North Vancouver, British Columbia), which allows the patient who is using a 2-piece pouching system to snap the pouch off the flange, remove the liner, discard into the commode, place a new liner in the pouch, and reattach the pouch to the flange. One other option is for the patient to drain the effluent into the pouch liner and discard the liner into the toilet.

\subsection*{Visualizing the Stoma}

Patients who are obese may have difficulty seeing the stoma. Using a mirror can facilitate cleaning the peristomal skin and assessing the stoma, but placement of the pouching system while using a mirror can be difficult. One technique employed by patients with difficulty centering the pouching system around their stoma is that before removal of their old pouch, they mark the line where the pouch adhesive meets the skin. When cleaning the peristomal skin they do not remove the mark, and when reappling a new pouching system they line the edge of the new adhesive with this mark. This allows them to place the pouching system without direct visualization of the stoma.
**Stoma Complications**

The comorbid conditions that are associated with obesity, hypertension, type 2 diabetes, and pulmonary and heart diseases compromise the ability to heal effectively after a surgical procedure and can lead to the following stoma complications.

**Necrosis**

Leenen and Kuypers\(^\text{15}\) report a higher rate of stomal necrosis in patients who are obese as a result of the traction that is placed on both the mesentery and bowel wall. Necrosis is seen immediately after stoma creation, generally occurring within 24 hours of the surgical procedure.

Necrosis is seen immediately after stoma creation, generally occurring within 24 hours of the surgical procedure. The degree of necrosis can vary from a small area on the stoma to the entire stoma above the skin level and/or down to below the fascia. The stoma appears dark, varying from maroon to black and the tissue feels flaccid.\(^\text{21}\) The degree of necrosis should be assessed by passing a small lubricated glass tube into the stoma and inspecting the stomal mucosa with a pen light. If the necrosis extends below the fascial level, urgent reoperation is warranted. If the necrosis is above the fascial level, the stoma is reassessed at frequent intervals. The necrotic tissue will slough and may require debridement. As the necrotic tissue sloughs, a mucocutaneous separation will occur. As the mucocutaneous separation heals, there is a high incidence of stenosis. Thus, the patient with a necrotic stoma should be carefully assessed for transitions in stoma function and appearance.

Teaching points for the patient with necrosis include:

- The necrotic tissue will in time “fall” away, and there maybe a significant odor to this tissue as it occurs.
- The stoma will not “fall” into the abdomen during this healing process.
- Follow a low residual diet as the stoma is healing (to prevent obstructive symptoms as the effluent passes thru a possibly stenotic stoma).

**Retraction**

Retraction is the disappearing of the normal protrusion of the stoma to or below skin level. Arumugam et al\(^\text{22}\) analyzed risk factors and found that a high BMI was associated with an increased rate of stoma retraction. Retraction occurs from tension on the stoma caused by 1 or more of the following factors: short mesentery, thickened abdominal wall, excessive scar or adhesion formation, obesity, inadequate initial stoma length, necrotic stoma, and mucocutaneous separation.\(^\text{23-24}\)

Patients may note that the stoma disappears when they are sitting. They might also report inability to maintain a seal on the pouching system and notice leakage of the effluent under the pouch seal. For many retraction cases, a convex pouching system can provide a predictable seal. Several degrees of convexity may need to be evaluated for the person with stoma retraction and an obese abdomen. Soft adipose tissue surrounding a retracted stoma may cause deep creases and folds (Figure 2) that may be stabilized with the use of a convex pouching system. Several manufacturers of ostomy equipment provide “levels” of convexity, ranging from “light” (Coloplast, Marietta, Ga), to “moderate” (ConvaTec, Princeton, NJ; Hollister, Libertyville, Ill; Nu-Hope, Pacolma, Calif) to “deep” convex (Marlen, Bedford, Ohio, and Nu-Hope, Pacolma, Calif), as well as custom convexity constructed by businesses that manufacture the product from either measurements or a mold of an area on a specific patient (NuHope, Pacolma, Calif, and King Ostomy, Spokane, Wash). The level of convexity will be determined by assessing the peristomal area in a flat and sitting and standing position to determine the amount of depth and firmness that will be needed. Because of the shifts of tissue in the peristomal area, the patient who is obese who uses a convex pouching system may find a belt enhances the skin-to-barrier contact.

In some cases of a retracted stoma, convexity may not provide a predictable seal. The use of a thin flexible pouching system seal might be an alternative (Cymed, Berkeley, Calif). This system uses a polyurethane film as a seal that may allow adhesion in a deep crease. The use of a non-flanged 2-piece pouching system may also be considered (Assura AC Coupling, Coloplast, Marietta, Ga, and Esteem Synergy, ConvaTec, Skillman, NJ). These systems allow the skin barrier to flex into the deep creases, while the pouch...
rides on a plastic zone attached with an adhesive seal (Figure 3). In these cases, the patient can remove the pouch to empty and reapply (if emptying via the tail is not an option). This alternative may not be available when using a flanged 2-piece system, because in these situations the flanged skin barrier will not be flexible enough to maintain a skin seal. Surgical revision may be considered if the patient is unable to maintain a predictable seal that protects the peristomal skin. Local revision is possible in cases where there is adequate intestine to mobilize above the skin level. In some cases, a laparotomy is necessary to create a new stoma, often to be located on the opposite site.9 This procedure does not guarantee a better outcome, because the surgeon is still facing the same issues of a thick abdominal wall and short mesentery. Furthermore, the second laparotomy and closure of the previous ostomy site puts the patient at increased risk of incisional hernias.

**Mucocutaneous Separation**

Detachment between the surrounding skin and the stoma results in mucocutaneous separation. The separation may be the result of poor healing or tension. Risk factors in the patient who is obese can include prior administration of corticosteroids, diabetes, and stoma necrosis. A mucocutaneous separation is treated conservatively. The area is filled with absorbent products that can include skin barrier powder, alginates, and hydrofiber. The separation is covered with the solid skin barrier of the pouching system. Because this separation requires full-thickness healing to occur, the resultant scar tissue can cause stoma stenosis. It is advisable to assess the area as it heals for stenosis, as well as retraction.

**Stenosis**

Stenosis is a narrowing or contracting of the stoma occurring at the skin or fascia that impairs the drainage of the effluent.23 Stenosis occurs as a result of ischemia; contributing factors in the patient who is obese can include necrosis, excessive tension on the mesentery, retraction, and mucocutaneous separation. A digital examination using a gloved lubricated finger is performed to assess the size and mobility of the skin and fascial rings. When a digital examination is not possible because of severe stenosis, a retrograde contrast study through a small rubber catheter may be performed.21 For mild stenosis of fecal diversions, a low residue diet, stool softeners, and/or a high liquid intake may allow easy passage of the stool thru the stoma. For more severe cases, surgical intervention may be necessary and is based on the cause of the stenosis. If the stenosis is located at the skin level a local revision may increase the opening. If the stenosis is the consequence of excessive tension, retraction or a full-thickness necrosis, the stoma will need to be re-fashioned after advancement of the intestinal loop.

**Conclusion**

Patients who are obese undergoing abdominal surgery resulting in the creation of fecal or urinary diversion represent a challenging population for both the surgeon and the ostomy nurse specialist. It is mandatory that a multidisciplinary approach be taken in planning surgery and in educating and caring for these patients postoperatively. Meticulous preoperative siting, understanding the indications, and the type of stoma (loop vs end, temporary vs permanent), play a pivotal role in good outcomes for these patients because revisional surgery offers suboptimal results.

Preoperative weight loss is strongly encouraged when a reasonable delay of the surgical procedure is feasible. Furthermore, the importance of losing weight before revisional surgery for a failed stoma or for stoma-related complications should be emphasized to the patient.

**KEY POINTS**

 Patients who are obese and undergoing a surgical procedure that results a fecal or urinary diversion requires advanced skills of a multidisciplinary healthcare team.
Patients who are obese carry a higher risk of wound and cardiopulmonary complications and often present a serious challenge in terms of stoma creation and management.

Along with intraoperative blood loss, anastomotic failure, septic complications, the risk factors that face the obese patient undergoing stoma surgery include: necrosis, retraction, mucocutaneous separation, and stenosis.

Stoma site selection is a critical factor that contributes significantly to a positive outcome in an obese patient; considerations in siting a stoma include placement in an area free from creases and folds, in an area that the patient can visualize and provide self-care, away from bony prominences, within the rectus abdominis muscle, and, if possible, placed under the belt line. In the very obese patient, placement of the stoma should be made in the least technically challenging location.

References

CE Test

Care of the Obese Patient With an Ostomy

Instructions:
- Read the article on page 378.
- Take the test, recording your answers in the test answers section (Section B) of the CE enrollment form. Each question has only one correct answer.
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- Mail completed test with registration fee to: Lippincott Williams & Wilkins, CE Group, 333 7th Avenue, 19th Floor, New York, NY 10001
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CE TEST QUESTIONS

General Purpose Statement: To familiarize the registered professional nurse with the risk factors that face the patient who is obese and undergoing stoma surgery, the challenges of stoma creation, and the resultant stoma management problems.

Learning Objectives: After reading this article and taking this test, the nurse will be able to:
1. Describe stoma site selection and surgical issues for the patient who is obese.
2. Explain ostomy patient care issues for the patient who is obese.

1. Which of the following is a critical factor that contributes significantly to a positive outcome in a person with a stoma?
   a. age
   b. gender
   c. stoma site selection
   d. comorbid condition

2. Placement of the stoma through the rectus muscle helps prevent the development of
   a. a peristomal hernia.
   b. wound infections.
   c. deep venous thrombosis.
   d. a tear in the mesentery.

3. As a general principle, where should the stoma sit on an obese patient?
   a. high on the abdomen
   b. low on the abdomen in a flat area
   c. in the right upper quadrant
   d. in the left lower quadrant

4. What can cause a narrow fascial opening?
   a. a blockage in the mesentery
   b. tension and compression on the mesentery
   c. a parasomal hernia
   d. diarrhea

5. When it is safe to postpone surgery for a reasonable time, the authors of this article recommend which of the following for obese patients?
   a. weight resistant exercise therapy
   b. a low-fat diet
   c. a low-carbohydrate diet
   d. weight-reduction surgery

6. Patients who are obese and have ulcerative colitis who are referred for an ileal pouch anal anastomosis should be advised to
   a. reduce their BMI to 30 or greater.
   b. lose 10% of their body weight.
   c. undergo laparoscopic gastric banding.
   d. follow a low fat diet for three weeks prior to the procedure.

7. Which of the following is key to success in laparoscopic approaches to stoma creation?
   a. location of the stoma site
   b. premedication with antibiotics
   c. diagnosis of less than 6 months
   d. careful patient selection

8. According to research by Thomas, et al, overweight patients who underwent abdominal procedures had
   a. higher rates of failed extubation.
   b. higher wound infection rates.
   c. an increased incidence of pulmonary embolism.
   d. an increased incidence of deep vein thrombosis.

9. Which of the following is true?
   a. Obesity is not considered a risk factor that can influence poor outcomes in the patient undergoing an abdominal surgical procedure.
   b. Patients who are obese may have difficulty seeing the stoma.
   c. Stoma-related complications rate have been reported as high as 24%.
   d. Abdominal surgery in morbidly obese patients is not more time consuming than it is in the general population.

10. Leenen and Kuypers reported that a higher rate of stomal necrosis in patients who are obese is a result of
    a. type 2 diabetes.
    b. peripheral vascular disease.
    c. traction that is placed on both the mesentery and bowel wall.
    d. wound infection.
11. When is stomal necrosis generally seen?
   a. within 24 hours of the surgical procedure
   b. 48 hours after the surgical procedure
   c. 72 hours after the surgical procedure
   d. one week after the surgical procedure

12. Teaching points for the patient with stomal necrosis include
   a. informing the patient that necrotic tissue has no odor.
   b. advising the patient that the stoma will “fall” into the abdomen during the healing process.
   c. following a low residue diet as the stoma is healing.
   d. drinking cranberry juice to prevent infection.

13. Which of the following has been found to be associated with an increased rate of stoma retraction?
   a. a high BMI
   b. a history of type 2 diabetes
   c. use of corticosteroids
   d. stomal necrosis

14. If a patient reports that their stoma disappears when he is sitting, you would suspect
   a. retraction.
   b. mucocutaneous separation.
   c. stenosis.
   d. detachment.

15. Which of the following pouching systems can provide a predictable seal for many cases of retraction?
   a. concave
   b. convex
   c. closed-ended
   d. open-ended

16. Stoma stenosis occurs as a result of
   a. retraction.
   b. necrosis.
   c. bowel obstruction.
   d. ischemia.

17. If stoma stenosis is located at the skin level, which of the following may increase the opening?
   a. refashioning after advancement of the intestinal loop
   b. a local revision
   c. a low residue diet and/or a high liquid intake
   d. stool softeners

CE Enrollment Form
Journal of Wound, Ostomy and Continence Nursing, November/December 2005:
Care of the Obese Patient With an Ostomy

A Registration Information:
Last name______________________ First name____________________MI____
Address__________________________________________________________
City_______________________________State_________________Zip_______
Telephone___________________Fax______________email________________
Registration Deadline: December 31, 2007
Contact Hours: 3.0
Fee: $19.95

B Test Answers: Darken one for your answer to each question.

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C Course Evaluation*
1. Did this CE activity’s learning objectives relate to its general purpose?  A  B
   ☐ Yes  ☑ No
2. Was the journal home study format an effective way to present the material?  A  B
   ☐ Yes  ☑ No
3. Was the content relevant to your nursing practice?  A  B
   ☐ Yes  ☑ No
4. How long did it take you to complete this CE activity?  hours  minutes
5. Suggestion for future topics

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Morbid obesity is an increasingly common healthcare problem, and providers and patients currently face numerous challenges in dealing with this problem effectively. Issues addressed in this article include the effect of stigma, the need for more evidence regarding effective management options, and the declining insurance coverage for bariatric surgery. The role of bariatric surgery in effective management of morbid obesity is discussed, along with the effect on and possible reasons for declining coverage. A comparison between benefits and coverage for bariatric surgery and angioplasty/stent placement is included.

The year 2004 was important for obesity. The National Institutes of Health (NIH) Obesity Research Task Force called obesity “a pervasive public health problem,” and the Centers for Disease Control and Prevention declared, “obesity is the fastest-growing cause of preventable death in the nation, soon to overtake tobacco as the leading cause.” Obesity contributes to diabetes, cardiovascular disease, sleep apnea, musculoskeletal disorders, and early death. According to data published by the Rand Corporation in March 2004, 20% of healthcare expenditures among individuals aged 50 to 69 will be obesity related by the year 2020; this represents a 50% increase from 2000. Effective management of this epidemic is currently compromised by several major issues, including stigma, the need for more evidence regarding effectiveness of various intervention options and programs, and declining insurance coverage for bariatric surgery.

Impact of Stigma Associated With Obesity

Stigma has been defined by Goffman as an “attribute that is deeply discrediting” and that reduces the bearer “from a whole and usual person to a tainted, discounted one.” Individuals who are obese are readily stigmatized because of the nature of their discrediting attribute, obesity, which is both visually accessible to others and perceived as controllable by many in the population. Studies have demonstrated that the societal prejudice against obesity is well established even in early childhood. Certainly by first grade, children ascribe negative attributes, such as laziness, ugliness, and lack of willpower, to silhouettes of children who are obese. People who are obese are perceived as less intelligent and less able to work because of poor work habits and the perception that they are more emotional and have more interpersonal problems that would interfere with work.

A study of body image in a group of approximately 200 white, African American, and Asian college women found that although 85% were normal weight (body mass index [BMI] < 25), 55% believed that they were slightly or markedly overweight. “Although the percentage of morbidly obese women in the population is 3 to 4 times that of morbidly obese men, women are 10 times more likely than men are to seek gastric bypass surgery.” This may result from the increased stigma that women face in society even at relatively low BMIs. Men tend not to feel the same level of stigma until they fall into the highest BMI group. Research conducted in Europe found that a man pictured with a woman who was obese was rated 22% more negatively than the same man with a thin companion. The man was seen as more likely to be miserable, passive, depressed, weak, unattractive, and insecure when he was with the woman who was obese.
Organizations such as the National Association to Advance Fat Acceptance (NAAFA) have helped to decrease the stigma of obesity and to provide a means of coping with obesity through participation in social activism. Clothing lines and services aimed toward larger people have proliferated during the last 15 years and have helped to legitimize obesity. Today, 20% of all clothing sales for women are plus-sized. “Women’s-size” fashions are modeled by “women’s-size” models. There are stores for “big-and-tall men.” Size-friendly resorts provide big chairs for enjoying the seaside. Seat belt extenders are available in cars and airplanes, assistive devices are marketed that help obese persons dress and even clean the bath tub without bending, the “ample sponge” was invented to help people who are obese to reach every body part when bathing, and sturdier hangers are available for heavier clothing. Even caskets are made for obese to reach every body part when bathing, and sturdier hangers are available for heavier clothing. Even caskets are made for the obese to reach every body part when bathing, and sturdier hangers are available for heavier clothing. Even caskets are made for obese to reach every body part when bathing, and sturdier hangers are available for heavier clothing. Even caskets are made for the obese to reach every body part when bathing, and sturdier hangers are available for heavier clothing. Even caskets are made for obese to reach every body part when bathing, and sturdier hangers are available for heavier clothing. Even caskets are made.

Regardless, the majority of people who are obese do want to be thinner. Increased public awareness of the challenges of obesity and the results of weight-reduction interventions has been spurred by celebrities’ experiences. Celebrities such as Oprah Winfrey, Al Roker, Carrie Wilson, Kirstie Alley, Sarah Ferguson (Fergie), Randy Jackson, and Roseanne Barr, among others, exemplify the success of diet, exercise, and, for an increasing number of patients, bariatric surgery in achieving weight reduction. Bariatric surgical procedures that were once considered cosmetic and risky are becoming commonplace. Surgery may be the only option that offers a permanent fix to the predictable sequelae of obesity: diabetes, cardiovascular disease, sleep apnea, musculoskeletal disorders, and early death. In addition, standardization of bariatric surgical procedures has decreased risks, and laparoscopic surgery has decreased recovery time and time off of work. All of these factors have worked together to increase the acceptance of bariatric surgery as the most effective treatment for obesity.

Nevertheless, the emotional impact of stigma on patients with clinically severe obesity is evidenced by their reluctance to seek healthcare. One of the first actions of nurses in clinic settings of all types is the ritual of weighing in. Scales are usually located in hallways, where they are in full view of other patients and healthcare providers. This process is disconcerting to many patients but may be particularly offensive to patients whose weight cannot be accommodated on the clinic scale. A weigh in is inevitably followed by a lecture on appropriate BMI, as if the obese person does not realize that he or she is overweight. Studies have shown that nurses are less attentive to the needs of patients who are obese than to the needs of other patients and worry about the possibility of injuries when caring for patients who are obese. In a busy hospital setting, it is sometimes seen as inconvenient to recruit additional staff to help move a patient. It seems that with all our openness to “living large,” we still harbor a deep bias toward those who are obese.

**Need for More Data Regarding Effective Management Programs**

There are currently 3 major categories of treatment for obesity: conservative management that includes diet, exercise, and counseling; drug therapy; and surgery. Recently, the NIH reported that first-line therapies for obesity were only minimally effective. With diet alone, only 5% to 10% of excess body weight is lost and weight regain is the norm. Physical exercise alone can produce a weight loss of 2% to 3% of excess body weight. Diet and exercise together improve weight loss but are generally not useful for people with clinically severe obesity. Weight regain is nearly universal among individuals who are obese, even when diet therapy, exercise, and behavior modification are provided. Very low-calorie diets are not more effective than low-calorie diets (800 to 1500 kcal/day), and neither diet approach is possible for most people to sustain. Short-term and long-term outcomes are positive for surgical interventions in comparison with conservative management (diet, exercise, and behavioral therapy). However, weight loss that is adequate to provide relief from the high risk for morbidity and mortality may not be acceptable to all patients. Education regarding the amount of weight loss to realistically expect can prepare patients for the physical, social, and psychological changes that are likely to occur. Conversely, additional research could provide new interventions that would bring weight down to BMIs that are more socially acceptable to patients.

Drugs are playing an increasing role in the weight-loss market. Eight drugs have been approved by the Food and Drug Administration (FDA) for weight reduction. Sibutramine (Meridia, Abbott Laboratories) and orlistat (Xenical, F. Hoffmann-La Roche Ltd) are the best known drugs, partially because of the heavy advertising of the drugs to the public. Taking a weight-loss (bariatric) drug can be expected to result in a 10-lb weight loss. Although this may not seem significant, it may be enough to reduce risk for obesity-related diseases and disabilities. In addition, drugs are frequently covered by medical insurance plans.

Current surgical options are generally divided into 3 types: surgeries that will reduce food absorption, surgeries that reduce the amount of food that can be ingested, and surgeries that do both such as the Roux-en-Y gastric bypass.
(RYGB). Surgeries that reduce food absorption do so by reducing the distance that food travels in the gastrointestinal tract by either removing a part of the stomach or attaching the stomach to the jejunum and bypassing much of the small intestine. Surgeries that fall into the reduction of food absorption type are jejunal bypass, biliopancreatic diversion (BPD), duodenal switch, and distal gastric bypass (DGBP).

Surgeries that reduce the amount of food intake create a small pouch at the top of the stomach. The size of the pouch (between 1 and 3 ounces) restricts the amount of food that can be eaten at one time. In this procedure, a small opening to the intestine (about ¼ of an inch in diameter) mechanically decreases the speed of stomach emptying and provides a longer sense of satiety. Surgeries that fall into the food-reduction type include vertical banded gastroplasty (VBG) and the lap-band system.

Although each of these surgical options has reported excess weight-loss results of between 40% and 60%, the RYGB, a combined approach, is currently preferred by North American surgeons because of the decreased risk of long-term weight gain when compared to the VBG and decreased risk for malabsorption problems when compared to the other bypass surgeries.14 There is a need for longitudinal data, however, that follow patients longer than 5 years postsurgery.15 The most definitive studies will be those that assess the risk and benefits of the various surgical procedures in randomized controlled trials.

Patients who are contemplating bariatric surgery need to be prepared for the lifestyle changes that are necessary after surgery. The surgery itself may correct some eating disorders leading to obesity, but important remaining factors need to be addressed. It is clear that the patient must change eating behaviors to maintain long-term weight loss. Patients have reported that the desire for binge eating continues postoperatively but that vomiting and early satiety deter this behavior.16 Research has also found that eating beyond satiation was a risk factor for becoming and remaining overweight and obese in premenopausal African American and white women.17 The physical responses to overeating after surgery would likely deter this behavior as well.

At least since the 1970s, researchers have been looking for a psychological or psychiatric cause for obesity. For many of the patients seeking bariatric surgery, the struggle with obesity has been nearly lifelong, beginning in preadolescence.18 Studies of some patients presenting for bariatric surgery have found a history of childhood sexual abuse in some of the patients. Research does not demonstrate a causative psychological effect, but suggests an association between sexual abuse and disordered eating.19 Overeating may result as a reaction to posttraumatic stress disorder (PTSD) symptoms in abuse survivors.20 In a small group of female patients awaiting bariatric surgery, those with a history of childhood sexual abuse had more negative core beliefs and a higher degree of association between their core beliefs and their BMI (but not higher overall BMI) than did patients without a history of childhood sexual abuse.21

Researchers continue to search for psychological precursors to clinically severe obesity. Measures of presurgical and postsurgical psychopathology have been either cross-sectional or short-term post-surgical follow-up, and longitudinal designs have not exceeded 3 to 5 years. Therefore, studies done before 2002 or 2003 probably do not reflect accurately the psychosocial make up, outcomes, and challenges of the current bariatric population. Although cross-sectional research may identify concomitant psychological or psychiatric pathology, prospective studies are necessary to determine whether the existence of psychological or psychiatric pathology predisposes individuals to obesity or if obesity predisposes individuals to psychological or psychiatric problems. This research would likely be unethical and impractical, because it would preclude intervention into either the identified mental health disorder or the obesity. It may be necessary, therefore, to accept that psychological or psychiatric conditions may exist among patients who are obese just as they may exist in other surgical populations.

Do any psychological or psychiatric findings predict which patients will do better after surgery? Research concerning patient selection for lap-band surgery found that greater age, greater BMI, hyperinsulinemia, poor physical activity, high pain score, general poor health, type 2 diabetes, polycystic ovary syndrome, and gestational diabetes were predictors of a lower percent of excess weight loss in the first year after surgery. The only predictor of increased percent of excess weight loss at 1 year was regular alcohol consumption.22 Interestingly, researchers have found that nonpredictors of excess weight loss at 1 year after lap-band were presence of an Axis I mental illness, such as depression or bipolar disorder; previous bariatric surgery; and sweet-eating behavior, all of which have been used by insurers to restrict access to surgery.

Research during the last 30 years has shown that patients who have undergone bariatric surgery report increased social contacts, social activity, and employability postoperatively.23 Quality of life as measured by the Medical Outcomes Trust Short Form-36 (SF-36) improved on all 8 subscales, and at 1 year after surgery mean scores were not different than those for a community sample.24

Declining Reimbursement for Bariatric Surgery

Increased prevalence of obesity, publicity concerning the procedure, and better surgical methods are bringing about
a change in the bariatric surgery-seeking population. Gastric bypass surgeries increased more than 7 times the initial number of surgeries between 1993 and 2003, from 16,200 operations to more than 120,000 operations annually.2,20 This increase comes at a time when the proportion of Americans with a BMI of 40 or more (usually at least 100 lb overweight) has increased fourfold, from 1 in 200 to 1 in 50.2 Insurers who pay for bariatric surgery typically require a BMI of 40 or more for coverage or a BMI of 35 or more for patients with serious comorbid conditions. According to the National Heart, Lung, and Blood Institute, appropriate candidates for bariatric surgery should be over 18 years of age, should be classified as Grade 2 (BMI > 40) or Grade 3 overweight (BMI > 35) with significant comorbidities, have a long history of obesity, have failed repeatedly at more traditional dieting programs, must be well informed about the surgery and motivated to make a lifelong change, should not be consumers of large amounts of sweets or alcohol, and should have no concurrent psychiatric illness.21 Some authors would exclude those candidates over 65 years of age because of an increased risk of cardiovascular or pulmonary disease and those with mental illness only if it renders the patient unable to understand and conduct the necessary after-surgery lifestyle changes.19 Finally, the medical benefits of the surgery must outweigh the risks of the surgery. Using these standards, 10 to 20 million US citizens (approximately 5% of the population) would currently be eligible for bariatric surgery.20

With the average cost of uncomplicated bariatric surgery ranging from $15,000 to $40,000, bariatric surgery is expected to become a lucrative business. Risk-management companies, such as the AON Corporation, that provide consulting services to customers, including managed care companies and insurers, have informed plan providers that coverage for bariatric surgery poses “significant cost challenges.”22 Reasons given for plan caution in covering bariatric surgeries are geared toward presumed excessive present and future costs that will be incurred by these patients. Plan providers are warned that they may not witness a positive economic return on investment (ROI) for several years (or at all), particularly if the plan covers businesses with high employee turnover.

Several national insurers, including United Health Care, the largest national insurer, have dropped coverage of bariatric surgery. As of January 2005, Aetna no longer covers bariatric surgery under its small company plans.2 Blue Cross and Blue Shield, as well as Cigna, have stopped paying for bariatric surgery in Florida and North Carolina.2 The only states currently with laws that require health plans to provide minimum coverage for obesity treatments, including bariatric surgery, are Georgia, Indiana, Maryland, and Virginia. The Coverage Issues Manual of the Centers for Medicare and Medicaid explicitly excludes coverage for intestinal bypass surgery. Section 35-33 states, “The safety of intestinal bypass surgery for treatment of obesity has not been demonstrated. Severe adverse reactions such as steatorrhea, electrolyte depletion, liver failure, arthralgia, hypoplasia of bone marrow, and avitaminosis have sometimes occurred as a result of this procedure. It does not meet the reasonable and necessary provisions of 1862(a)(1) of the Act and is not a covered procedure.”15 For persons who rely solely on a national insurance program to pay for their healthcare delivery, bypass surgery is, in effect, not available.

The restrictions placed on patients seeking bariatric surgery compared with the restrictions placed on patients undergoing angioplasty with stent placement reflect the prejudices faced by individuals who are obese. The restrictions placed on patients seeking bariatric surgery compared with the restrictions placed on patients undergoing angioplasty with stent placement reflect the prejudices faced by individuals who are obese. Both bariatric surgery and angioplasty with stent placement surgery run the risk of death and serious lifelong complications. Only 1 of these surgeries, bariatric surgery, is considered limitable by plans (Table 1).

A major area of concern for the insurance industry is that the cost of the bariatric surgery is just the beginning of other condition-related costs. Patients must permanently change their habits and may need support groups and psychological or psychiatric follow-up after bariatric surgery. The same can be said of patients undergoing heart surgery for stent placement. Heart patients, too, may need to be referred for individual, family, and group counseling to help sort out life problems or to help them adhere to lifestyle changes necessary to cope with their heart disease and surgery. Although researchers have searched for the personality type that will most likely suffer heart disease—we are all acquainted with the “Type A Personality”—surgical intervention is not restricted or denied to heart patients based on their personality type or propensity to overwork.

The insurance industry risk managers point out that bariatric patients are in lifelong need of vitamins and other
supplements because of decreased gastrointestinal absorption problems postsurgery. Heart surgery patients also need to adhere to a lifelong regimen of medications. They are prescribed antihypertensive medications, anticoagulants, antibiotics, antiplatelet, and antilipid medications, all drugs that bariatric surgery patients can often reduce or eliminate after their surgery. In addition, heart patients probably take vitamins and other supplements in an attempt to return to a healthful lifestyle. Ironically, the vitamins necessary for bariatric patients are often not covered by insurance plans, whereas the antihypertensive, anticoagulant, antiplatelet, and antilipid medications necessary for postsurgical heart patients usually are covered.

Insurers and risk managers cite bariatric surgical failure as a reason to deny coverage for the intervention. The bariatric literature notes that in most patients, the weight loss levels out at 18 to 24 months after the surgery and that some patients begin to gain back the weight. This weight gain, which sometimes results from surgical failure, such as band erosion or staple-line tears, is used as a reason to deny the reimbursement of the surgery initially. This reasoning is not used in conjunction with reimbursement for coronary artery surgery with stent placement.

It is important for nurses to advise the potential or actual bariatric surgery population that presurgical problems will not necessarily dissipate with weight loss. Relational, financial, and familial problems are likely to persist, even though they may no longer be blamed on weight. Patients may need to be referred to individual, family, or group therapy to overcome their problems by developing new coping strategies.

A constant theme, though, is that nurses need to understand that weight-loss surgery patients will always have special needs and considerations in their healthcare delivery just as do other surgical patient populations. Healthcare professionals can meet the bariatric surgery patient at any point on the continuum from presurgical consultation to postsurgical hospital care to routine outpatient healthcare delivery.

A US university published an article on bariatric surgery in its April 2004 edition. The article chronicled the life, through bariatric surgery, of a woman who was obese, who had been teased as a child and adolescent and ignored as an adult. The article highlighted the university as the originator of bariatric surgery and the current home to several internationally known bariatric surgeons. Although clearly this was a special-interest article, its timing and emphasis on the particular institution’s bariatric experience and excellence was nonetheless marketing to a potential source of income. This midwestern university is not alone in its efforts to attract potential bariatric surgery patients. Hospital systems from throughout the country advertise their bariatric services on the Internet. Some facilities accept credit-card payments and offer a 5% discount for prepaid services.

### Implications for Clinicians

It is important for nurses to advise the potential or actual bariatric surgery population that presurgical problems will not necessarily dissipate with weight loss.

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<td>Bariatric</td>
<td>$15,000 to $40,000</td>
<td>18 to 24 months and beyond due to failure to continue to lose or maintain weight loss</td>
<td>Vitamins (not covered by insurers)</td>
<td>Mandated by law only in Georgia, Indiana, Maryland, and Virginia, not covered by Medicaid or Medicare</td>
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<td>Angioplasty with stent placement</td>
<td>$29,000 to $43,000</td>
<td>3 to 6 months and beyond due to restenosis of vessels in 30% of patients</td>
<td>Antihypertensive, anti-coagulant, antibiotic, antiplatelet, and antilipid drugs (insurance eligible)</td>
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Obesity is a pervasive public health problem and is currently a major concern for individuals. Nurses can be advocates for patients in receiving insurance coverage by lobbying insurers and legislators.

Summary

Despite activism to address the social stigma that persons with clinically severe obesity face, this patient population continues to endure strong prejudice based on societal definitions of appropriate size. Although social acceptance may be the initial reason for patients wanting to reduce weight, research has demonstrated a positive relationship between obesity and various disease entities, including diabetes, cardiovascular disease, musculoskeletal disorders, and sleep apnea, all leading to shorter lives for these patients by 3 to 5 years.

Three major types of interventions are currently available to treat obesity: conservative management, drug therapy, and surgery. Conservative management reduces weight an average of 5% to 10% of excess body weight, an amount that can decrease medical risks but that may not decrease weight enough to achieve social acceptance in a size-conscious world. Drug companies are spending an increasing amount of money on research to produce new and more effective drug therapy options. Currently available drugs, such as Meridia (Abbott Laboratories) and Xenical (F. Hoffmann-La Roche Ltd) reduce weight by approximately 10 lb—an amount that may reduce medical risk but not social stigma. The surgical options are the most effective interventions for providing a significant (40% to 60% reduction in excess body weight) and permanent weight loss. More evidence regarding the relative effectiveness of the surgical interventions is necessary through randomized controlled trials.

At the same time that numerous surgical interventions for obesity are becoming standardized, insurers are backing off from covering bariatric surgery, probably in response to the shear numbers of eligible Americans.

At the same time that numerous surgical interventions for obesity are becoming standardized, insurers are backing off from covering bariatric surgery, probably in response to the shear numbers of eligible Americans. The obesity epidemic is being compromised by several issues, including stigma, the need for more evidence on interventions and programs, and declining insurance coverage for bariatric surgery.

KEY POINTS

- Obesity is a pervasive public health problem and is currently the fastest growing cause of preventable death in the United States, soon to overtake tobacco as the leading cause.
- Individuals who are obese are readily stigmatized. Several studies have shown that the societal prejudice against obesity is well established, even in early childhood, whereas other studies have shown that nurses are less attentive to the needs of patients who are obese than to the needs of other patients.
- The obesity epidemic is being compromised by several issues, including stigma, the need for more evidence on interventions and programs, and declining insurance coverage for bariatric surgery.
- Restrictions placed on patients who are seeking bariatric surgery compared to restrictions placed on patients undergoing angioplasty (with stent placement) readily reflect the prejudices faced by individuals who are obese.

References

In the United States, obesity has reached epidemic proportions. Serious medical complications, impaired quality of life, and premature mortality are all associated with obesity. Medical conditions such as type 2 diabetes mellitus, hypertension, hyperlipidemia, or sleep apnea can improve or be cured with weight loss. Medical treatment programs focused on diet, behavior modification, and/or pharmacologic intervention have met with limited long-term success. Although surgical treatments for obesity have become popular in recent years, they should only be used as a last resort for weight loss. Not all patients can be considered appropriate candidates for surgery; therefore, guidelines based on criteria from the National Institutes of Health should be used preoperatively to help identify suitable persons. Most individuals who opt for weight-loss surgery have usually struggled for many years with losing weight and keeping it off, but surgery alone will not ensure successful weight loss. Patient education is imperative for long-term success. Moreover, any such educational regimen should include information on diet, vitamin and mineral supplementation, and lifestyle changes, as well as expected weight-loss results and improvements in comorbid conditions. Patients must be willing to commit to a long-term follow-up program intended to promote successful weight loss and weight maintenance and to prevent metabolic and nutritional complications.

Obesity, a chronic disease manifested by an excess of body fat, has reached epidemic proportions. In the United States, 127 million adults are overweight, 60 million are obese, and 9 million are classified as morbidly obese. An increase in weight related comorbidities has paralleled this rise in obesity, prompting the US Centers for Disease Control and Prevention to rank obesity as America’s number one health threat in 2004 (Figure 1). In addition, obesity is now the second leading cause of preventable death, resulting in more than 400,000 deaths annually. It is projected that obesity will surpass tobacco use and become first on the list for preventable death in the year 2005.

The etiology of obesity is multifactorial. Environmental, metabolic, genetic, hormonal, and neurologic factors all contribute to varying degrees. The simple explanation is that weight gain is caused by consuming more calories than the body expends with excess calories stored as adipose tissue.

Body mass index (BMI) is the most widely accepted classification of weight status. To calculate an individual’s BMI, the body weight in kilograms is divided by height in meters squared. Charts and online sites are available for rapid calculation of BMI. BMI is not only used to diagnose and classify obesity, but it also can estimate health risk. Morbidity and mortality will increase proportionately to an individual’s BMI (Table 1). However, obesity-related health risk is also influenced by the distribution of body fat. Patients who exhibit central obesity (the “apple” shape) are at increased risk for cardiovascular disease and diabetes. A peripheral fat distribution pattern (the “pear” shape) is associated with abdominal hernia, venous stasis disease, and degenerative joint problems. The individual’s level of physical fitness is another factor that influences risk. People who are obese who are active and exhibit higher levels of fitness are at lower risk for developing cardiovascular disease or diabetes. The onset of overweight/obesity will also
contribute; the earlier the onset of weight problems, the higher the risk for developing associated comorbidities. Finally, ethnicity will also have an influence. For example, Asians are at greater risk for cardiovascular disease and/or diabetes compared to whites at the same BMI.

Weight loss and managing obesity provides for short-term and long-term healthcare benefits. Unfortunately, medical weight-loss programs encompassing dietary counseling, exercise programs, behavior modification, and/or pharmacotherapy demonstrate only modest results that are not sustained in the long-term. In addition, patients classified as morbidly obese are usually refractory to these medical weight-loss modalities. Although surgical treatment for weight loss is seen by many as a last resort, current data suggest morbid obesity is best treated with bariatric or weight-loss surgery. In a recently published meta-analysis, a substantial majority of patients who were obese demonstrated complete resolution or improvement in type 2 diabetes, hyperlipidemia, sleep apnea, and/or hypertension with weight loss after bariatric surgery.

As increasing numbers of people who are morbidly obese undergo surgical treatment for their obesity, it becomes increasingly important for healthcare providers, including the WOC nurse, to be knowledgeable about the various surgical procedures and the effect they may have on patients’ nutrition, vitamin, and mineral status. WOC nurses face unique challenges as they care for the obese patient, especially when consulted regarding skin breakdown and wound care. Nutrition related issues will vary depending on the surgical procedure, as well as where the patient is in his or her postoperative course. Recommendations regarding nutrition supplements will need to be made based on surgical anatomy.

**Patient Selection Criteria for the Surgical Treatment of Obesity**

In 1991, the National Institutes of Health (NIH) established guidelines for the surgical treatment of obesity (Figure 2). In addition to the NIH criteria, many bariatric surgery programs have additional guidelines whose aim is to decrease operative risk and establish patient accountability. For example, patients may be asked to eliminate tobacco use. Women of child-bearing age are asked to commit to the use of birth control for the first 18 to 24 months after surgery. This is done to protect the health of the fetus, as well as to ensure optimal weight loss results for the patient. Because they must follow strict dietary guidelines after surgery, it is also imperative for individuals to show they have the capacity to follow a diet and establish regular mealtimes. Therefore, patients may be asked to lose a predetermined amount of weight before surgery to demonstrate compliance, as well as their ability to follow a diet plan. This can frequently be accomplished by eliminating fast foods, high caloric liquids, and caffeine from the diet. In addition, preoperative weight loss of 10% or more of body weight may also reduce

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**TABLE 1. Classification of Obesity**

<table>
<thead>
<tr>
<th>Obesity Class</th>
<th>Body Mass Index</th>
<th>Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight</td>
<td>&lt;18.5</td>
<td>+</td>
</tr>
<tr>
<td>Normal</td>
<td>18.5-24.9</td>
<td>Normal</td>
</tr>
<tr>
<td>Overweight</td>
<td>25.0-29.9</td>
<td>+</td>
</tr>
<tr>
<td>Obese I</td>
<td>30.0-34.9</td>
<td>++</td>
</tr>
<tr>
<td>Obese II</td>
<td>35.0-39.9</td>
<td>+++</td>
</tr>
<tr>
<td>Obese III</td>
<td>40.0-49.9</td>
<td>++++</td>
</tr>
<tr>
<td>Super-obese</td>
<td>&gt;50.0</td>
<td>+++++</td>
</tr>
</tbody>
</table>

morbidity. Patients should not be at their heaviest lifetime weight at the time of their surgery.

**Preoperative Evaluation and Education**

Before surgery, all patients are required to undergo a psychological evaluation. The purpose of this evaluation is to ensure that the patient has a thorough understanding of all aspects of the surgical procedure and its risks. In addition, patients must be emotionally prepared to manage the postsurgical lifestyle and dietary changes. The meeting with the psychologist will focus on:

- Previous weight loss efforts and their results.
- Current diet and conditions that influence eating behavior.
- Factors that have contributed to previous success and failure in weight control.

Depending on the patient’s medical history, consults with other medical specialists, such as a cardiologist or pulmonologist, may be indicated. Tests commonly required before surgery include a cardiac stress test, echocardiogram, and/or sleep study to evaluate for sleep apnea.

Extensive patient education begins before surgery, using a variety of teaching methods, including group lectures, individual counseling, and the provision of written materials. Patient education is imperative for successful and safe weight loss and should include information on diet, vitamin and mineral supplementation, and lifestyle changes, as well as expected weight-loss results and improvement in comorbid conditions. Individuals are also encouraged to attend support group meetings where patients who have had bariatric surgery will provide those undergoing bariatric surgery a realistic view of how their life will change after surgery.

Patients must understand that weight-loss surgery is not a panacea. Bariatric surgery provides individuals with a “tool” that can be used to achieve long-term weight loss. This understanding should begin with the first patient encounter and must be a universal message delivered by all members of the bariatric surgery team. It is important that team members and the patient establish mutually realistic expectations focused on anticipated weight-loss results, as well as the resolution of comorbidities, improved functional capacity, and quality of life.

The bariatric surgery team works with the patient to establish lifelong health behavior modifications beginning in the preoperative period, because these changes will set the stage for life after surgery. Many patients will look to the surgery as a “new lease on life”; this philosophy may increase their level of readiness for making necessary lifestyle changes. Patients are asked to be personally accountable for following program guidelines and to assume ownership for the choices they make.

**Surgical Procedures for Weight Loss**

There are several different surgical procedures currently performed for weight loss, each achieving results by differing mechanisms of action. The laparoscopic adjustable gastric band (lap-band) and vertical-banded gastroplasty (VBG) are restrictive procedures; the biliopancreatic diversion (BPD) and duodenal switch (DS) are malabsorptive procedures; and the Roux-en-y gastric bypass (RYGB) is a procedure that combines both modalities. These procedures can be performed via either the open or laparoscopic approach, with the majority being done laparoscopically as this approach offers the advantages of a shorter hospital stay and less pain.
open or laparoscopic approach, with the majority being done laparoscopically because this approach offers the advantages of a shorter hospital stay and less pain (Table 2).

The restrictive procedures result in weight loss by reducing the size of the stomach, thereby limiting the amount of food and subsequently the number of calories an individual is able to consume. Before surgery, the stomach volume is 1 L; after a restrictive procedure, the small gastric pouch has a capacity of 15 mL. In addition, the outlet from the pouch is small, delaying the emptying of food and contributing to a sense of fullness. Therefore, after either of these procedures, despite a small portion size, patients experience an early sense of satiety followed by a prolonged sense of satisfaction.

The BPD and DS, both less commonly performed procedures in the United States, alter the mechanism of calorie absorption because during these surgeries the majority of small bowel is bypassed (only 1.5 feet is available for absorption after surgery vs 7 to 9 feet before surgery). Individuals who have had a BPD or DS eat a larger volume of food, but because the majority of calories are not absorbed, weight loss will occur. As a consequence of the malabsorption of nutrients, after a BPD or DS, patients will experience frequent loose stools and are at increased risk for protein malnutrition, vitamin and mineral deficiencies, and poorer quality of life.

The RYGB, presently recognized as the “gold standard,” is a combination procedure that restricts the volume of food eaten and limits absorption of nutrients. To a lesser degree, malabsorption is less likely with RYGB surgery than with the BPD or DS. The RYGB procedure offers the best combination of weight loss coupled with the fewest nutritional risks. Because this is a restrictive procedure, when an individual consumes a meal, he or she will experience an early sense of satiety. However, unlike the purely restrictive procedures, if the RYGB patient consumes foods high in sugar or fat (greater than 10 g of sugar or fat/serving) he or she will experience symptoms of the “dumping syndrome.” Within 30 minutes of consuming sugar, patients will become diaphoretic, experience heart
palpitations, and become flushed and tremulous. Shortly after these initial symptoms, the patient will have severe abdominal cramping and explosive diarrhea. A common response after experiencing a dumping episode is, “I felt like I was dying.” If a high-fat meal is consumed, patients will experience nausea, flatulence, and loose stools. These symptoms are a mechanism of 2 factors: first, rebound hypoglycemia resulting from the rapid absorption of sugar from the roux limb; second, the presence of sugar and/or fat in the roux limb triggers an osmotic pull of fluid from the vascular space into this portion of the small bowel. Because of the strongly negative feedback patients receive, they learn to avoid high-calorie foods, particularly those that contain sugar and fat.

**Postoperative Recovery**

Patients’ postoperative care after weight-loss surgery will vary among bariatric surgery programs. The use of standing orders and clinical pathways will provide a program with direction, facilitate adherence to program guidelines, and allow for the evaluation of outcomes. Protocols should be in place that addresses perioperative care, diet progression, pain management, and deep venous thrombosis prophylaxis.

For example, at the Medical College of Wisconsin, prophylaxis for deep venous thrombosis includes early ambulation, the use of sequential compression devices, and anti-coagulation. On the first postoperative day, patients will undergo a limited gastrointestinal swallow study to evaluate for an anastomotic leak or obstruction (Figure 6). Once the examination has been determined to be normal, patients will begin sipping water and for their evening meal will receive a pureed diet. After lunch on the second postoperative day, if the diet is tolerated and adequate liquids (64 oz) are consumed, the patient is discharged home according to the clinical pathway. Patients who have undergone a laparoscopic RYGB are typically hospitalized for 2 days; when the procedure is performed using an open approach, patients are usually discharged on postoperative day 4.

**Risks and Benefits of Roux-en-y Gastric Bypass Surgery**

Roux-en-y gastric bypass (RYGB) surgery is not without risk, and patients need to understand both the potential bene-

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**TABLE 2.**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roux-en-y gastric bypass (combination procedure) (see Figure 5)</td>
<td>The stomach is divided and separated with a stapler, and a 15-mL gastric pouch is created. The small intestine is then cut approximately 2 feet below the stomach and, a gastrojejunostomy is formed with a 10-mm outlet allowing food to empty slowly from the pouch. The lower part of the stomach is bypassed, but the digestive juices, bile, and stomach acid flows normally, eventually mixing with and digesting food where they meet at the jejunojejunitomy.</td>
</tr>
<tr>
<td>Laparoscopic adjustable gastric band (restrictive procedure) (see Figure 3)</td>
<td>An inflatable band is placed around the upper stomach to create a small gastric pouch. The band is connected to an implanted reservoir in the abdominal wall. The reservoir can be accessed with a needle and saline injected to inflate or deflate the band affecting the emptying time of the pouch.</td>
</tr>
<tr>
<td>Vertical banded gastroplasty (restrictive procedure)</td>
<td>The upper stomach near the esophagus is stapled vertically to create a small pouch. A band is placed to restrict the outlet from the pouch delaying the emptying of food.</td>
</tr>
</tbody>
</table>
| Biliopancreatic diversion; duodenal switch (malabsorptive procedures) (see Figure 4) | In general, three main components:  
  a. Partial gastrectomy done to decrease acid and prevent ulcer  
  b. Biliopancreatic limb—remainder of small bowel; diverts digestive juices  
  c. Nutrient or common limb—portion of small bowel where absorption occurs (50-100 cm in length); biliopancreatic limb empties digestive juices to mix with food stuffs. |

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Mortality rates of 0.5% (1 in every 200 cases) after gastric bypass are reported in the literature. An anastomotic leak, one of the most catastrophic postoperative complications, may contribute to a prolonged hospital stay and lead to possible reoperation.

Mortality rates of 0.5% (1 in every 200 cases) after gastric bypass are reported in the literature. An anastomotic leak, one of the most catastrophic postoperative complications, may contribute to a prolonged hospital stay and lead to possible reoperation. Leak rates are reported to range from 0.72 to 4.3% and can contribute to other infectious complications, such as intraabdominal abscess. Wound infection rates in an open procedure are reported to be as high as 9.0%, whereas with the laparoscopic approach, the incidence falls to 1.5-5.0%, which is an advantage of this technique.

It is anticipated that patients will lose 60-80% of their excess body weight during the first 18-24 months after RYGB surgery. To calculate a patient’s excess body weight, his or her ideal body weight is subtracted from his or her actual weight. In the first month after surgery, patients will lose approximately 10% of their preoperative weight. During each of the next 5 months, patients will lose an average 10-15 lb per month. Weight loss will slow during the course of the second half of the first year, with patients losing half as much weight as they lost during the first 6 months. For example, if a patient lost 100 lb during the first 6 months, he or she may lose approximately 50 pounds during the following 6 months. The majority of weight loss will occur within the first year after surgery.

Improvement will begin to be seen in the patient’s comorbid health conditions as the weight is lost. In a recent meta-analysis, type 2 diabetes mellitus was resolved or improved in 86% of patients who had undergone weight-loss surgery. Hypertension resolved or improved in 78.5% and hyperlipidemia improved in 70% of patients postoperatively. Individuals with obstructive sleep apnea also saw their condition resolve or improve 83.6% of the time.

### Table 3: Surgical Morbidity and Mortality

<table>
<thead>
<tr>
<th>Complication</th>
<th>Incidence, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mortality</td>
<td>0.2-1.5</td>
</tr>
<tr>
<td>All complications</td>
<td>7-15</td>
</tr>
<tr>
<td>Anastomotic leak</td>
<td>1-3</td>
</tr>
<tr>
<td>Pulmonary embolus</td>
<td>1-3</td>
</tr>
<tr>
<td>Infection</td>
<td>3-12</td>
</tr>
<tr>
<td>Anastomotic stenosis</td>
<td>3-14</td>
</tr>
<tr>
<td>Ulcer</td>
<td>10-15</td>
</tr>
<tr>
<td>Ventral hernia (open procedures)</td>
<td>10-20</td>
</tr>
<tr>
<td>Cholelithiasis</td>
<td>10-35</td>
</tr>
</tbody>
</table>

### Diet Progression, Metabolic and Nutritional Concerns, and Exercise

#### Diet Progression

The first year after surgery is the ideal time during which patients can begin to establish a new lifestyle; it is also the time frame when individuals are at their greatest risk for dehydration, nausea and vomiting, and protein malnutrition. It is therefore critical that patients have available to them and participate in a postsurgery follow-up program designed to promote lifestyle changes and minimize nutritional complications. Because of changes in their metabolic milieu during the first 3 to 6 months after surgery, individuals are not typically hungry; thus, this is the most opportune time to institute and reinforce a healthier way of eating. Mealtimes are structured: 3 meals per day, spaced approximately 5 hours apart with the majority of meals eaten at home, and no between-meal snacks. To reduce calories and avoid “dumping” symptoms, patients are instructed to keep their diet low in fat and sugar and limit their intake either to 10 g or less per serving. During this first year, patients relearn how to eat and drink; therefore, what had once been a behavior requiring little thought becomes a conscious activity.

As the capacity of their pouch changes, how and what individuals eat and drink will change during the first year. The pouch will always remain 15 mL, but with time when a meal is eaten it will be able to stretch, reaching a maximum capacity of 180-200 mL (still less than a “normal” stomach capacity of 1 L). The goal of diet progression during the first 6 months, therefore, is to prevent dehydration and protein malnutrition and to minimize gastrointestinal symptoms triggered by poor dietary choices. Later goals are mechanical manipulation of the pouch to control hunger and protein maintenance (Table 4). Patients are asked to keep a dietary log to document their liquid and protein intake, both as a monitoring tool and a means to incorporate new eating habits into their daily lives.

#### Dehydration

In the first months after RYGB, there is a physiologic as well as a mechanical risk for dehydration. Early after surgery the patient will enter a ketogenic state wherein fat is burned for energy and fluid requirements are increased (water is needed for this chemical reaction). After weight-loss surgery, patients require a minimum of 64 oz of liquid or they will rapidly dehydrate. The early and predominant symptom of dehydration is nausea. The nausea that patients experience furthers to compound the problem, be-
cause they typically drink less in response to this symptom. In addition to this physiologic risk, during the early postoperative period, patients are also mechanically restricted and therefore cannot drink more than 1 oz every 15 minutes by taking small frequent sips of liquid. Therefore, if patients are unable to meet their minimum fluid requirement, it becomes physically impossible to make up the deficit, and they may require IV fluids. At the first sign of nausea, patients are instructed to begin to “drink through their symptoms” to avoid worsening dehydration. If they are successful, their nausea will subside and they will maintain their hydration status.

### Nausea and Vomiting
Nausea and vomiting after RYGB are not only caused by dehydration but also can be triggered by eating meals too quickly, overeating, reclining immediately after a meal, or consuming foods that are high in fats and/or sugar. Timing of liquid intake is also important in preventing nausea; if patients drink with their meals or in proximity to mealtime, they will experience nausea and/or vomiting. Patients need to understand what caused their symptoms and then make the appropriate adjustment to avoid symptoms in the future. Antiemetics are ineffective in treating nausea in these situations. If patients experience an episode of nausea and/or vomiting (not related to dehydration), they are taught to withhold any liquids or solids until their symptoms subside. Once their symptoms have resolved, they are directed to first suck on a sugar-free Popsicle or ice chips. Patients will then progress to sips of water followed by drinking, after which their diet will gradually be advanced over the next 24 hours. If at any time a patient's symptoms are irretractable, a limited upper gastrointestinal radiologic examination may be indicated to rule out an obstruction.

### Protein Intake
To avoid entering a starvation state and to preserve lean muscle mass after RYGB, patients will need to have a minimum protein intake of 60 g/day. Some bariatric surgery programs will advocate the use of protein supplements or small frequent meals to achieve this goal. Because high-calorie liquids and between-meal snacks will slow weight loss and may lead to weight regain in the future, in the authors’ program patients are taught from the beginning

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**TABLE 4. Diet Progression**

<table>
<thead>
<tr>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
<th>Six Months and Beyond</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food consistency</td>
<td>Pureed</td>
<td>Soft, easy-to-chew foods; meats ground</td>
<td>Solid foods</td>
</tr>
<tr>
<td>Length of meals (3 meals/day; 5 hours apart)</td>
<td>30-45 minutes</td>
<td>30-45 minutes</td>
<td>30 minutes</td>
</tr>
<tr>
<td>Timing and amount of liquids</td>
<td>64 oz</td>
<td>80 oz</td>
<td>100 oz</td>
</tr>
<tr>
<td>No liquid with meals. Hold liquids for 30 minutes before and after meals.</td>
<td>No liquid with meals. Hold liquids for 30 minutes before and after meals.</td>
<td>No liquid with meals. Hold liquids for 30 minutes before and after meals.</td>
<td>No liquid with meals. Hold liquids for 60-90 minutes after meals to avoid flushing.</td>
</tr>
<tr>
<td>Food order</td>
<td>Protein first. Will usually be full after 2-3 oz of protein.</td>
<td>Protein first. Will usually be full after protein; may be able to start to add vegetables, fruit, and starch in that order. May be able to eat 3-4 oz.</td>
<td>Protein first. Will usually be able to add vegetables, fruit, and starch in that order. May be able to eat 4-6 oz.</td>
</tr>
</tbody>
</table>
how to accomplish an intake of 60 g/day (3 meals per day). Initially, when the patient’s volume of food eaten is restricted by the small volume of the pouch, their food items can be fortified with powdered milk or egg whites (the protein content is increased without increasing the volume). There are also new low-carbohydrate/high-protein milks and yogurts available, which are good food choices for RYGB patients.

Exercise
To maximize weight loss and preserve lean muscle mass, patients need to be physically active after undergoing bariatric surgery. One hour of planned exercise of a moderate intensity per day is the ideal goal. Walking is encouraged if patients do not have joint problems; otherwise, water exercise is an excellent option.

Long Term Follow-up
Long-term risks attributable to weight-loss surgery include vitamin and mineral deficiencies, cholelithiasis (in those patients with a gallbladder), and weight regain. During the first 6 months after weight-loss surgery (the period when patients experience rapid weight loss) patients are at an increased risk for forming gallstones (bile becomes saturated with cholesterol). To minimize this risk, patients can be placed on 300 mg of ursodiol twice a day. Studies have shown a significant decrease in gallstone formation and symptomatic cholecystitis with ursodiol prophylaxis. Several authors have reported on the incidence of vitamin deficiencies after RYGB. Observational studies have demonstrated that iron deficiency can occur in 20-49% of patients and B12 deficiency in 26-70%; non-hemolytic anemia was identified in 18-54% of patients within the first year of surgery. To prevent anemia, lifelong vitamin and mineral supplementation is therefore suggested after RYGB. It is recommended that patients take a multivitamin with minerals, 500 µg of oral vitamin B12, and 1000-1200 mg of calcium daily. Menstruating women may also require additional iron supplementation to prevent iron-deficiency anemia. Monitoring vitamin and mineral status, as well as nonhemolytic anemia evaluation, should occur routinely after weight-loss surgery.

Regular office visits provide patients the opportunity to receive ongoing education and counseling focused on exercise and diet; regular office visits also provide healthcare practitioners the opportunity to monitor their patient’s nutritional and metabolic status. At the Medical College of Wisconsin, patients are followed for a minimum of 5 years, because an individual’s chance for ongoing success increases if his or her weight can be maintained for that time period. Weight maintenance depends on the patient’s adherence to diet, regular physical activity, and self-monitoring of weight and food intake. To prevent weight regain, patients must avoid consuming high-calorie liquids, drinking liquids with meals, and snacking between meals. If individuals drink liquids with their meals, they will “flush” the solid food out of their pouch and delay achieving fullness. Such “flushing,” therefore, allows a patient to eat more, which leads to the consumption of more calories, with weight regain being the result. A patient’s attendance in a support group where facilitating lifestyle change, weight loss, and weight maintenance are the focus, is therefore encouraged.

Summary
Long-term success after bariatric surgery depends on patients being well educated in how their surgery will promote weight loss and the lifestyle changes they must make to accomplish this goal. Personal accountability on behalf of the patient is a necessary component. A team of healthcare professionals must be available to provide bariatric surgery patients with ongoing education and support. With a patient’s commitment to lifestyle change and the provision of necessary support personnel, weight loss can be significant and maintained lifelong.

Key Points
- Roux-en-y Gastric Bypass will provide patients with a tool which can be used to achieve long-term weight loss and minimize obesity-related health risks.
- Education of the patient is necessary to ensure success and minimize complications after weight-loss surgery.
- A multidisciplinary bariatric team will promote success and provide necessary support for patients.

References


It is unimportant how patients become morbidly obese. Once they reach this position they require aggressive and life-saving treatment, often not offered to patients because of a poor understanding of the disease process.

—Dr. Roy Smoot, FACS
Former Medical Director
Changing Lives Through Bariatric Surgery

Regardless of whether your facility has an existing surgical bariatric program, ongoing attention to staff education and the organization’s physical environment is key in identifying potential areas of risk and need for improvements in meeting the needs of this special patient population. Development of an organization-wide protocol specifically designed to meet the needs of all bariatric patients will facilitate the provision of safe and dignified care for both patient and caregiver. Protocol parameters to include are assessment for body mass index, abdominal-hip girth, mobility level, and skin complications. Assessment findings trigger care planning for optimal patient outcomes.

The Facts

Obesity has been an epidemic in the United States for the last several years. Two thirds of adult Americans are overweight or obese. The government reports obesity as the second leading cause of preventable death, killing approximately 400,000 Americans. Approximately 33% of this population is classified as obese. Obesity is quantified as a person with body mass index (BMI) of more than 29. BMI is a measure calculating an individual’s weight relative to his or her height. It is estimated that 5 to 10 million people in the United States suffer from severe or morbid obesity. Morbid obesity is defined as a person who weighs 100 lb or more over his or her ideal bodyweight, with a BMI of 40 or higher. In July 2004, the Centers for Medicare and Medicaid Services (CMS) published a position statement describing obesity and removing language in the Medicare Coverage Issues manual stating that obesity was not an illness.1,2

With the rise in the number of persons with BMIs greater than 35 and the long-term ineffectiveness of diet therapy and exercise, the National Institutes of Health (NIH) established guidelines for the surgical therapy of morbid obesity, referred to as bariatric surgery.3 The American Society of Bariatric Surgery (ASBS) reported 86,000 bariatric procedures performed in 2003 and has projected 120,000 procedures for 2004.4 The surgical approach to obesity management is being documented with outcomes of long-term success and cost effectiveness.5,6

Hospitals offering bariatric surgery are seeing an increase in inpatient admissions. Attention to details, such as appropriate patient selection, assessment, and care planning, are a must in today’s climate of malpractice and liability and are crucial to the optimal patient outcomes.

Attention to details, such as appropriate patient selection, assessment, and care planning, are a must in today’s climate of malpractice and liability and are crucial to the optimal patient outcomes.

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Christine Bauer, MSN, RN, APRN, Director of Bariatric Surgery for Upper Chesapeake Health at Harford Memorial Hospital, Havre de Grace, Md.

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Bariatric Program Design

In 1998, Nanticoke Memorial Hospital, a rural community hospital in southern Delaware, initiated the first bariatric surgery program in that state. The program (Changing Lives through Bariatric Surgery) was designed to include a multidisciplinary team approach to the surgical treatment of morbid obesity. It consisted of 3 major components for continuity of care with structured preoperative, hospitalization, and aftercare programs. The multidisciplinary team included the bariatric surgeon, clinical nurse specialist, registered dietitian, certified social worker, and exercise specialist. Additionally, the Surgical Services Department formed a Clinical Innovations Team (CIT) composed of operating room, postanesthesia, preadmission testing, and social services staffs to consider the needs of the patient (and staff) related to the plan of care while in these areas. An outcome of the CIT was the identification of operating room staff members who were interested in the specialty procedure; these staff members were subsequently recognized as “the” procedure team.

The Roux-en-Y gastric bypass procedure was approached in either laparotomy or laparoscopic fashion, with approximately 500 procedures performed during the initial 4 years. When the program began, hospital-wide staff education and competency was an initial priority and has continued to this day on an ongoing basis. Education focuses on morbid obesity as a chronic illness with associated comorbidities, surgical risks and complications, postoperative care, cultural sensitivity, and access to and correct use of size-appropriate equipment.

Bariatric Protocol Development

Because the volume of bariatric patients requiring care at the facility increased, the Bariatric Program Director and Wound Ostomy Continence Nurse Specialists identified the need to standardize methodologies aimed to assess and provide optimal care to this population. Staff frequently called the authors for specific information that could be recorded in procedure and protocol format, placed in unit manuals, and accessed by clinicians whenever needed. These unit manuals also assist clinicians in assessing products and implementation of specific interventions that can be initiated without delay. Issues of caregiver and patient safety in providing bariatric care are similarly addressed, as adequate personnel coupled with use of appropriate equipment serve as the best combination for safe outcomes. The authors’ purpose in developing a bariatric care protocol was to holistically meet the needs of this patient population by promoting clinical safety and patient dignity.

The bariatric protocol outlines important assessment parameters to be considered on the patient’s entry into the authors’ care. On admission, patients are assessed for weight and height. For this assessment, BMI charts are available with the protocol for staff reference, with the guideline of common skin complications, including candidiasis within the perineum area or skin folds, incontinence-related dermatitis secondary to inability to perform personal hygiene, pressure ulcers (including sites other than bony prominences), venous insufficiency/ulceration, and/or lymphedema.

**Staff are to be particularly alert for common skin complications, including candidiasis within the perineum area or skin folds, incontinence-related dermatitis secondary to inability to perform personal hygiene, pressure ulcers (including sites other than bony prominences), venous insufficiency/ulceration, and/or lymphedema.**
that all staff members are aware of the location of a bariatric scale, which is wheelchair accessible, accommodates up to 1,000 lbs (454.4 kg), and is housed in the day surgery unit.

In promoting safe clinical care and patient dignity, the staff involved in all patient care areas has access to bariatric blood pressure cuffs, bariatric patient gowns, and bariatric sequential compression boots. For patients requiring total or partial assistance with mobility, appropriate-size sensitive lift, transfer, ambulation, and transportation equipment are available. The protocol notes that the standard hospital stretcher accommodates up to 500 lb (227.2 kg). Bariatric transport stretchers are also available, as are bariatric wheelchairs. Patient lateral transfer devices accommodate up to 800 lb (363.3 kg) and are available on all acute care areas. The bariatric protocol also notes that an overhead lift device is available from postanesthesia care unit.

**Future Vision: Continuing to Meet the Need**

Providing care for patients who are morbidly obese will continue to present unique challenges to staff and patients, not just for surgical bariatric patients but for all patients in the various settings of care. Access to equipment that is sensitive to a person’s weight and habitus for purposes of mobility, lift/transfer, and testing is an important consideration for patient care staff. The surgical program includes specific patient selection criteria: patient’s age between 18 and 55 years with BMI no more than 80. Weight capacity of existing equipment and equipment needs were first identified for purchase: for example an operating room table, stretcher, wheelchairs, bedside commodes, walkers, transferring/lifting devices, and waiting room seating. Each patient care unit will therein continue to identify and prioritize their unit’s ongoing needs to be included in their annual capital expenditure plan for future purchases.

Although product availability was limited in the late 1990s, today most durable medical equipment manufacturers have recognized the challenges faced by healthcare providers and facilities in meeting the needs of adult Americans who are obese. With the modifications in product size often come significantly higher costs. Attempting to balance these increased costs with adequate access and using established criteria and processes to provide size-sensitive care, bariatric equipment purchases have often been blended with options to rent. Despite these advances, however, there continues to be challenges in providing necessary diagnostic care because of the current limitations of radiology and cardiac catheterization equipment. On average, this equipment is weight-limited to 350-450 lb and changes when positions are manipulated. However, there are currently no options for purchasing equipment of this type that would meet the size needs of some bariatric patients. Healthcare professionals, when providing care to this population of patients, must be ever-conscious of safe and effective practice within the known limitations of the equipment.

To continuously monitor for risk potential and performance improvement, the program conducted a risk assessment survey using a tool that was provided to us by a liability insurer. This was developed with supporting data from the medical literature and professional organizations, such as the ASBS, American College of Surgeons (ACS), and Society American Gastrointestinal Endoscopic Surgeons (SAGES). A summary of the survey findings was presented to the appropriate multidisciplinary committees for action planning as needs were identified.

Regardless of whether any facility has an existing surgical bariatric program, ongoing attention to staff education and the organization’s physical environment is key in identifying potential areas of risk and the need for improvements. Development of an organization-wide protocol specifically designed to meet the needs of all bariatric patients facilitates the provision of safe and dignified care for both the patients and the caregivers.

**ACKNOWLEDGMENTS**

The authors thank Dr Roy Smoot, FACS, Medical Director of Upper Chesapeake Health’s New Course . . . For Life Bariatric Surgery Program, and Joanne Shirey, MSN, RN, CWOCN, who assisted with the development of the bariatric care protocol.

**KEY POINTS**

- Ongoing hospital-wide staff education and accessibility of size-sensitive equipment are priorities in managing the bariatric patient population.
- Parameters for education in the care of the bariatric surgical patient include recognition of morbid obesity as a chronic illness with associated comorbidities, unique surgical risks and post-operative care needs, cultural sensitivity, and use of size-appropriate equipment.
- Development of an organization-specific bariatric care protocol will facilitate a holistic approach in meeting the needs of this patient population through the promotion of clinical safety and patient dignity.
References


Appendix

TITLE: Bariatric Care1,2

CATEGORY: PROTOCOL
OWNER: Joanne Shirey/K. Wright
MANUAL: Care of the Patient, DO-ET
Committee Review: CCLC
Signature: __________________

PURPOSE:
To meet the physical needs of the bariatric patient promoting clinical safety and dignity.

NOTE: The word “bariatric” pertains to weight and is used in the field of healthcare to describe the treatment and management of weight. Weight is measured in kilograms. When referenced with a person’s height it can be described in terms of body mass index (BMI) and categorized accordingly: normal (BMI 20-25), overweight (BMI 26-29), obese (BMI 30-39), morbid obese (BMI > 40). See BMI Chart.

PERSONNEL: All NMH patient care providers

DESIRED PATIENT OUTCOME:
To ensure patient and caregiver safety, patient dignity, and emergency preparedness.

Areas of Responsibility | Care Directives
--- | ---
Assessment | On admission, patient should be assessed for:
1. Weight/height.
2. Estimate abdominal/hip girth related to ability for safe lateral repositioning or chair sitting.
3. Level of dependency
   A. Total assist
      1. Cannot support own weight and/or is uncooperative.
      2. Little to no upper body strength.
   B. Partial assist
      1. Able to bear weight but needs assistance more than supervision/instruction.
      2. Upper body strength.
   C. Independent:
      1. Requires only supervision/instruction.
      2. Performs tasks safely with or without assistive devices.
4. Skin complications
   A. Candidiasis within perineum or skin folds.
   B. Incontinence-related dermatitis secondary to inability to perform personal hygiene.

### Areas of Responsibility

<table>
<thead>
<tr>
<th>Care Directives</th>
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<tr>
<td>C. Pressure ulcers.</td>
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<tr>
<td>D. Venous stasis/lymphedema.</td>
</tr>
<tr>
<td>5. Presence of monitoring/treatment equipment, eg. glucose meter, C-PAP, walker.</td>
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#### Treatment/management

1. For patients >204.6 kg (450 lb) and/or significantly widened hip girth, consider the use of appropriate size-sensitive equipment:
   A. Bariatric bed (see Procedure #922: Specialty Bed Rentals).
   B. Bariatric bedside commode.
   C. Bariatric scale (wheelchair accessible & accommodates up to 454.4 kg (1,000 lbs), available from day surgery).
   D. Bariatric blood pressure cuff.
   E. Bariatric patient gowns.
   F. Bariatric sequential compression boots, eg, Flowtrons, if ordered.
   G. Gradient sequential compression boots.

   Consult WOCN for appropriate placement.

2. For patients requiring total or partial assistance with mobility, appropriate size-sensitive lift, transfer, ambulation, and transportation equipment should be used:
   A. Stretcher chair—Camtec Converta Litter available in ICU.
   B. Bariatric transport stretcher—standard hospital stretcher up to 227.2 kg (500 lb).
   C. Bariatric wheelchair.
   D. Bariatric walker.
   E. Hover Matt—accommodates up to 363.3 kg (800 lb). Available on all acute care areas.
   F. Vertical lift device—Sit-to-Stand device available on PCU and MSU.
   G. Bariatric Hoyer/overhead lift device, available from PACU on completion of Specialty Equipment Requisition form (see Patient Care Specialty Equipment policy and procedure).

#### Consultation/referral

1. Wound Ostomy Continence Nurse.
2. PT/OT.
3. Social services.
5. Bariatric program coordinator

#### Documentation

2. Specialty equipment requisition form.

#### Patient education

Educate family/caregiver on safe and effective use of equipment.

### References

Promoting Effective Preceptorship Experiences

Olive Yonge  ■  Flo Myrick  ■  Linda Ferguson  ■  Florence Lughana

Preceptors and students alike want and need a positive preceptorship experience. There are some factors, however, that must be considered when arranging such experiences, including sufficient time, workload management, use of space, monetary payment for preceptorship, preparation for the role, the one-to-one relationship, and the learning environment. This article concludes with specific strategies that address these factors. The first uses a theoretical model, one advocated by the authors, the Preceptor Enabling Model. This model delineates the roles and responsibilities of students, preceptors, staff, and faculty. Preceptors, too, need preparatory workshops, paid time for orientation to the role, evaluation of preceptors, and finally, support.

Every professional discipline relies on its practitioners to teach students. In the health sciences, this form of teaching is called clerkships, internships, or preceptorships. Professionals employed by healthcare agencies are expected to contribute to the socialization, education, and overall development of students. In nursing, registered nurses readily assume this responsibility and function as preceptors. There are, however, factors that affect the effectiveness of the experience. The purpose of this article is to examine those factors and to recommend strategies that would facilitate the work of preceptors. The factors the authors discuss are time, workload management, use of space, monetary payment for preceptorship, preparation for the role, the one-to-one relationship, and the learning environment. This article concludes with strategies by which to address these factors.

Time to Be a Preceptor

Time is universally regarded as the biggest constraint on effective preceptorship. Many preceptors report experiencing competing demands on their time, and preceptoring students often has to give way to the priorities of patient care. Pulsford and associates reported a large number of preceptors who reported problems with finding the time to spend with students. Several suggested they be given time or additional staff coverage to allow for spending more time with students. Others in this same study stated they conducted aspects of the preceptoring role on their own time. These findings support previous research identifying time for undertaking preceptorship activities as being a significant factor. Coates and Gormley asked preceptors, students, and managers about factors enhancing and hindering preceptorship. The majority of respondents indicated lack of time as the main barrier to working as a preceptor. They indicated that patient care has priority over teaching, and in today’s busy healthcare system, little time is left for teaching. In addition, the study participants identified the need for protected time for preceptors and students to work together. Nurse managers, concurring with preceptors, suggested preceptors needed to be allocated time in the same way patient care has scheduled time.
Preceptor participants in Corletts' study spoke of the difficulties in finding time to build an effective relationship with students because of their workload. They explained that in busy clinical settings, patient care was given priority over students' learning, even though they felt guilty at not having time to teach students. This finding relates directly to the next factor, workload.

**Workload**

Staff nurses report they are busy with their current patient care assignments and other responsibilities. Being a preceptor requires extra time and energy, particularly in the beginning phase and in the early part of the working phase. Results of a mail survey of 295 preceptors revealed that preceptoring nursing students can be a stressful experience, with overwork identified as the main source of stress. Preceptorship requires additional time, energy, and patience in an increasingly busy and complex work environment. Preceptors commented on how they had “to be on their toes” because they constantly felt “responsible for the student’s learning experience.”

Heavy workloads have been and continue to remain a standard feature of clinical nursing. The multiple responsibilities involved in being a preceptor mean preceptors’ energies must be relegated between patient care responsibilities and students’ needs for direction. When these responsibilities conflict, however, priority in most cases is given to patient care, which, as preceptors acknowledge, can lead to a sense of pressure and guilt for being unable to fully meet students’ needs.

The most common sources of stress reported among preceptors related to the added responsibilities and extra time required when units were busy. In situations of increased responsibility, preceptors found that precepting students was quite demanding, time consuming, challenging, and stressful. Students who did not possess the appropriate clinical skills, motivation, or interest in the clinical area contributed negatively to the preceptor’s workload. Furthermore, preceptors who felt coerced into the preceptor role experienced resentment, resulting in a negative preceptorship experience for both the nurse and the student.

**Space**

The provision of teaching space in which preceptors can work with students is also an important consideration, because not all objectives can be achieved at the bedside. Few agencies are designed for the number of learners designated to these clinical areas. Students taught in the traditional manner by a clinical instructor usually have a preconference or postconference in a prebooked room to afford them privacy and confidentiality. Preceptors, on the other hand, do not prebook rooms or require a large room. They do, however, require private space where they can provide students with ongoing verbal feedback. If the feedback is negative, understandably they do not want others to overhear them.

**Payment**

Staff nurses may or may not be paid for the role of preceptor to nursing students. In some agencies, the role of preceptor is seen as part of one's professional responsibility in the education of students for the profession. In other agencies, employers pay nurses small increases to their hourly rates or a flat amount to assume the role of preceptor. In yet other agencies, the educational institution may pay the preceptor or the healthcare setting or provide specific benefits, such as access to a professional development fund to preceptoring nurses. The issue of payment continues to be a contentious issue in preceptorship. If there is payment, it is viewed as tokenism; nurses may provide one-on-one observational experiences and will not be paid as a preceptor because the observational experience is considered to be an informal teaching arrangement. Nurses preceptor nonnursing students and receive no payment, so they question why there is a discrepancy. These factors contribute to difficulties in attracting and retaining staff nurses as preceptors for students. Although there is no research in this area, in general, preceptors are not paid for preceptoring.

It is not unusual for learners to finance their education by indirect payment, such as tuition or by direct remuneration to a preceptor via the agency or directly to the agency itself. Payment may thus be viewed as an incentive to the preceptor and a reward for preceptoring. The actual value of the payment is difficult to assess given the various arrangements and lack of standards in this area. Students too may perceive that because they have paid for this education, they are therefore entitled to a certain level or standard of teaching. Payment, however, can become a contentious issue when students are assigned to multiple preceptors or a nurse other than a preceptor. The issue is the perception of payment: Is it viewed as a bonus or reward or as payment for a service? The amount of payment is also at issue. Currently, educators cannot determine...
what constitutes a fair payment and unions have been negotiating what is to be considered a fair and equitable remuneration for the preceptor role.

It is recognized that financial remuneration is only one form of recognition. Numerous other strategies have been used. The authors have written letters of commendation with a copy to the preceptor’s personnel file; given small gifts (preceptors really appreciate pens and pins); sponsored Preceptor Appreciation Workshops, luncheons, and teas; asked preceptors to speak to nursing students; given preceptorship appreciation awards; and changed admission forms to the graduate school to include preceptorship experience as part of the assessment. The authors have also observed preceptors becoming mentors to the students, whereby they transform a professional relationship to a personal one after the practicum has ended.

### Preparation for the Preceptor Role

Proper preparation of a preceptor is one of the most important factors related to the success of the preceptorship experience, yet most preceptors do not feel adequately prepared for their role, particularly in the areas of teaching and evaluating. Students' clinical performance is difficult for preceptors to assess, and most preceptors have little or no experience with this role. In several cases where preceptors reported they had been adequately prepared for their role but were unable to meet the students' learning needs, they indicated that the demands of work prevented them from precepting effectively. How nurses are selected and recruited to be preceptors relates to the level of preparation. If preceptors are selected based only on availability and not on interest or abilities, they likely will demonstrate a different level of motivation. Conversely, on the other side of preparation and selection are the preceptors and students who are matched according to learning needs and teaching styles, personality, or educational background. More frequently, however, preceptors are selected for the position solely because of their tenure and experience within the organization. It is assumed these individuals are perceived as knowledgeable and skilled and are believed to be capable of the additional responsibility to act as a preceptor to the student nurse.

**The One-to-One Relationship**

The one-to-one relationship between a preceptor and student provides close supervision and immediate feedback concerning performance. It also contributes to the development of the student’s self-confidence and competence in performing clinical skills and enabling him or her to think critically. Findings from a study by Nehls et al.16 concur with the view that the one-to-one relationship in preceptorship enhances learning. Students describe the one-to-one relationship with the preceptor and use the word *time*; they appreciate the amount of time involved, as well as how this time was spent. They perceived the one-to-one relationship in preceptorship as being crucial to their learning. Students reported that preceptors immediately answered their questions. The students did not have to wait in line to ask a question, as is usually the case in the traditional approach with a faculty-student ratio of 1:10, which, in turn, allows little time for individualized teaching and guidance. These findings appear to support the one-to-one preceptorship relationship in which the individual needs of the learner can be addressed with greater possibilities existing for students to receive immediate feedback and being facilitated in the different practice experiences.

### Positive Learning Environment

The tenor of the learning environment can affect the success of the preceptorship experiences both positively and negatively. The success of the preceptorship relationship rests largely with the tone set by preceptors and staff. An environment in which preceptors genuinely value, support, and work with students and staff and accept students as part of the team will contribute significantly to the preceptorship success.

Most researchers would agree the most effective learning climate is one that fosters support; is devoid of threat, facilitates openness, inquiry, and trust; and avoids competitive performance judgments.
fidance, (2) valuing the students’ responsibility, and (3) needing time together. The participants in the study confirmed that it is crucial for the preceptors to be able to trust the student. The preceptors stated that once they developed this trust, the foundation was created from which they could easily begin to extend the scope of the student’s responsibilities. This trust was expressed as a mutual confidence derived out of the time spent working and being together. In addition to the preceptor, staff with whom students interact on a daily basis also play a crucial role in creating a safe environment.21 The attitudes and behaviors of nurses and their relationship with the preceptor influences how the staff members relate to the students,21,27 In learning environments where the preceptor and staff genuinely value the students, reflective practice will be enhanced. Valuing is a characteristic that is shared by preceptors who are effective in enabling students to think critically, a characteristic that is, in turn, reflected in their approachability, openness, and respect for students’ perspectives. Particularly significant in the process is the preceptors’ recognition that the students wish to be acknowledged and valued as colleagues.

■ Strategies

Thus far, the authors have identified the factors influencing preceptorship experiences. There are, however, strategies that can be used to promote these factors. First, it would be most beneficial to use a theoretical model or guiding framework with which to facilitate the preceptorship experience. The authors recommend the Preceptorship Enabling Model (PEM) derived from the work of Myrick.13 The model emanates from research involving preceptors and students. The framework provides parameters within which the preceptorship experience can be planned and implemented. Key features include the orientation of the preceptors, students, and faculty to their specific roles. Also addressed is the role the staff plays on the various units in which the preceptorship occurs. The importance of communication between key players is explored within the context of the preceptorship experience, and suggestions are provided to maximize their potential. Role modeling, guiding, facilitating, and prioritizing are discussed and strategies addressed to promote preceptor enabling of critical thinking. Factors related to ensuring that a climate that is conducive to the teaching/learning experience is also discussed, and ways to ensure that the promotion of safety, trust, and respect are delineated.

Second, research related to the preceptorship experience is essential in developing an understanding of the various complexities that can exist when two people, such as the preceptor and student, work so closely together. Examples of research currently being undertaken by the authors and graduate students include assessing how preceptors teach nursing students practical wisdom, examining how preceptors evaluate students in rural settings, exploring the possibility of an interdisciplinary tool to capture the preceptorship experience among four allied healthcare facilities, and to determine the effect on a preceptor of preceptoring a student who is unsafe. As with the PEM, which is derived from research, the research findings that emanate from the works of other scholars can serve to enhance the preceptorship experience; inform the faculty, student, and preceptor; and provide key insights into the strengths and weaknesses of this approach to clinical teaching. Thus, changes can be developed and additional strategies designed to continue to improve the experience.

Finally, when the preceptorship experience is viewed as more than a professional obligation to be fulfilled by the individual nurse and is considered to be a long-term commitment, the relationship that develops between the preceptor and student can evolve into a mentorship relationship. Such an evolution can only serve to strengthen the profession of nursing itself. It can provide increased potential for the recruitment of new staff and create greater cohesion among the nurses themselves. Given the predicted nursing shortages of the near future, such a development may be critical to the profession’s survival.
tors, workshops can be staged to provide preparatory experiences at various levels. Precepting skills acquired through preparatory workshops and developed through experience can also be used in the practice setting to precept orientating nurses or assist nurses in remediating experiences.

Another strategy that has been explored is the employer provision of paid time for the orientation and evaluation of students in preceptored experiences. 26 Although this situation is ideal, shortages of nurses on the clinical units makes release of the preceptors difficult, if not impossible. If nurses are using personal time for orientation or for completion of the evaluation process and forms, paid time for such activities acknowledges the value of the preceptors’ contribution to the education of students.

The preceptored learning experience is a triad relationship among preceptor, student, and supervising faculty. ...


Enhancing Rigor in Qualitative Description

A Case Study

Jill Milne  Kathleen Oberle

Qualitative description has generally been viewed as the “poor cousin” to more developed qualitative methods, such as grounded theory. As such, little has been written about rigor in qualitative description, and researchers lack a navigational map to guide them and facilitate decision making. The novice, in particular, can be faced with numerous challenges and uncertainties. Using an incontinence project as a case study, the authors describe the issues that arose within a qualitative descriptive study and approaches used to maintain rigor. The overall credibility of the study depended on the researcher’s ability to capture an insider (emic) perspective and to represent that perspective accurately. Strategies to enhance rigor included flexible yet systematic sampling, ensuring participants had the freedom to speak, ensuring accurate transcription and data-driven coding, and on-going attention to context.

Criteria by which to judge qualitative research has been the subject of vociferous debate for the past 3 decades. The argument has been centered on the belief that because qualitative research is based on different assumptions and has different goals than quantitative research, approaches to assessing its merit must necessarily be different. Quantitative research, for example, aims to approximate the “truth” about phenomena. The overall validity or “truth value” of a quantitative study relies on adherence to a pre-defined set of strategies that commonly include experimental manipulation, randomization, and strict control of extraneous variables. Researchers strive to measure the concept of interest accurately and consistently, ensuring that findings are free from confounding influences.

In contrast, qualitative research seeks not to reveal “truth” but to generate insights. Qualitative researchers aim to describe and understand the nature of reality through participants’ eyes with careful and on-going attention to context. Rich detailed data are valued, and participants are often purposefully selected for their ability to inform the topic/phenomenon of interest. The relationship between researcher and participant becomes an important research tool with the potential to enrich findings.

As a result of such fundamental differences, qualitative researchers have recommended distinct criteria by which to judge the trustworthiness of findings. The array of criteria and terminology, however, can be particularly problematic for the novice researcher doing a qualitative descriptive study. There is no clearly defined approach to qualitative description, which has often been viewed as a “poor cousin” to more developed qualitative methods, such as grounded theory. Qualitative description is a stand-alone method that affords a comprehensive summary of human experience without an in-depth level of interpretation. The goal is to stay close to the surface of data while capturing all the elements of that experience, and the inherent scientific rigor is a reflection of a researcher’s ability to achieve that goal.

The purpose of this article is to inform novice qualitative descriptive researchers by example; that is, by making visible the challenges encountered in a study conducted by one of the authors (JM). The authors make no attempts to claim the strategies presented as new or innovative but rather hope that sharing this research experience will help others to recognize and cope with potential pitfalls while providing an understanding of various means to enhance rigor.

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Case Study

Behavioral therapies, such as pelvic floor muscle exercise and bladder training, are generally recommended as first-line treatment for urinary incontinence (UI) because they are noninvasive. Patients’ ability to maintain these therapies is critical to their success. Evidence, however, suggests that adherence may be sporadic at best. The purpose of this qualitative descriptive study was to explore and describe the self-care strategies that individuals maintain at home and the factors that affect their decision making. The study is described in detail elsewhere. To summarize, research questions were:

- What self-care strategies, related to their UI, do people initiate and/or maintain?
- What are the perceived benefits of these self-care strategies?
- What factors influence self-care choices?
- What factors facilitate/impede adherence to behavioral strategies?

Individuals who were over the age of 18 years, had a history of UI, were independent in their activities of daily living, and were able to articulate the self-care strategies they had initiated to manage/treat their UI were eligible for the study. Initial recruitment strategies included (1) placing posters in health clinics, (2) advertising in newspapers, and (3) verbally presenting information about the study at monthly continence information sessions. Letters advertising the study were also mailed from a physiotherapy-led continence clinic, a nurse-led continence clinic, and a multidisciplinary continence clinic.

Thirty-eight eligible individuals (33 women and 5 men) participated. The first 15 participants were assigned to individual interviews to enable rich deep data through one-on-one discussion and probing. Subsequent participants were invited to attend group interviews to enhance the breadth of data through active discussion and reflection to facilitate disclosure through recognition of shared experience. Ten preferred to be interviewed privately in their homes (for a total of 25 individual interviews). The remainder attended 1 of 3 group discussions. Focus groups were smaller than generally recommended (4-8 participants) because of scheduling difficulties and last-minute conflicts. Small groups did allow participants to spend more time responding to and reflecting on what others had said.

All data were analyzed using qualitative content analysis, a method that involves breaking down transcribed data into smaller units, coding or naming these units according to their content and/or concepts they represent, and categorizing or grouping coded material based on shared concepts. The first level of coding was applied to identify the broad substantive content, or the main emphasis of the item being coded, such as help-seeking, psychosocial impact of incontinence, and pelvic floor muscle exercise. Subsequent levels of coding involved reexamining the content of such codes to identify commonalities and differences. For example, subcategories of help seeking included factors that motivate help seeking and factors that impede help seeking.

Categories and subcategories were reviewed numerous times to facilitate identification of themes that crossed categorical boundaries. The major theme was that the majority of participants’ self-care efforts were directed toward maintaining a normal lifestyle. Participants were willing, for example, to void hourly or more often if this allowed them to carry on as usual between voids. However, they discontinued therapies such as intensive pelvic floor muscle exercise routines and bladder training regimens, which they viewed as more personally disruptive than the incontinence itself.

Strategies Used to Enhance Rigor

Numerous strategies contributed to the scientific rigor of this qualitative descriptive study. To enhance clarity, these strategies have been organized according to the framework proposed by Whittemore et al: (1) authenticity, or attention to the voices of participants, (2) credibility, a reflection of how believable results are, (3) criticality, the critical appraisal of every decision made throughout the research process, and (4) integrity, demonstrated by ongoing reflection and self-criticality of the researcher. Because these criteria are highly interrelated, they are discussed in pairs. The credibility of a qualitative study is a factor of strategies to promote authenticity, the ability to remain true to the phenomenon under study, while the integrity is a reflection of its criticality, or the attention paid to each and every research-related decision.

Authenticity and Credibility

The credibility of any study must be directly related to its purpose; that is, what the study was intended to accom-
Ensuring Freedom to Speak
Ensuring that participants are free to speak begins with design-related decisions that directly affect whose voices will be heard. The major strategies used in this qualitative study were a purposeful, yet flexible, sampling plan and participant-driven data collection.

Purposeful Sampling
Whereas quantitative researchers strive for randomly selected representative samples to enhance the generalizability of their findings, qualitative researchers purposefully select participants who can provide in-depth information of relevance to the research question/purpose. Sampling in qualitative research is therefore an evolving process: because data collection and analysis occur simultaneously, sampling needs can change and strategies remain flexible.

Little is known about why individuals choose to maintain certain UI therapies but not others. Initial recruitment strategies, therefore, involved attempts to ensure a variety of experiences. Adult men and women who had a history of UI were invited to participate. Professional help seeking was not an inclusion criteria because individuals seek help/information in numerous ways, including the Internet. However, analysis of early interviews revealed that participants had abundant experience with management-based strategies (particularly protective padding and frequent voiding) but only limited experience with behavioral strategies, such as pelvic floor muscle exercises. As a result, purposeful sampling was initiated to recruit participants who would describe their decision making related to behavioral strategies. Additional ethical approval was obtained, and pamphlets advertising the study were mailed to past and current clients from a physiotherapy-led, a nurse-led, and a multidisciplinary clinic.

Sample Size
Decisions related to sample size in qualitative research are not straightforward. A sample of 50 participants was proposed to enable 10-20 individual interviews and 3 to 5 focus groups. Moreover, interviews were expected to continue until theoretical saturation was apparent. Theoretical saturation means that a qualitative sample may be considered adequate when data inform existing findings but do not add anything new to them. True saturation, however, may be a myth in that a second interview with the same participants could yield new information. Saturation is also particularly difficult to achieve in qualitative description, wherein the goal of analysis is to capture individual participant meaning and to explore commonalities and differences. Participants in this study continued to describe unique experiences. Data collection was concluded when no new categories emerged and the relationships between data in existing categories were clear.

A flexible yet systematic and purposeful sampling plan was, therefore, the first step in ensuring that participants with UI had the freedom to speak. After recruitment, close attention was paid to strategies that would promote participant-driven rather than researcher-driven data.

Ensuring Participant-Driven Data
A flexible topic guide is important to ensuring participant-driven data because it allows participants to tell their own stories in their own ways. This served 2 purposes in the current study. First, it helped to ensure an emic perspective because participants decided what was important. Several participants emphasized the importance of staying dry, but only casually alluded to strategies that allowed them to do so, such as voiding hourly. From their perspective, the personal cost of incontinence was greater than the seemingly cumbersome strategies to prevent it. Second, allowing participants to tell their own stories established a sense of partnership and trust between researcher and participant. This can be particularly important when discussing a sensitive issue, such as UI. One participant in her 60s had been incontinent since childhood. The story she told included substantial detail about her years growing up in small towns in Alberta, Canada. Although this had little to do with her incontinence, telling that story and having someone listen gave her the confidence to discuss what she described as a “shameful” condition (UI). As a novice researcher, it is particularly important not to structure a participant’s stories in their own ways. This served 2 purposes in the current study. First, it helped to ensure an emic perspective because participants decided what was important. Several participants emphasized the importance of staying dry, but only casually alluded to strategies that allowed them to do so, such as voiding hourly. From their perspective, the personal cost of incontinence was greater than the seemingly cumbersome strategies to prevent it. Second, allowing participants to tell their own stories established a sense of partnership and trust between researcher and participant. This can be particularly important when discussing a sensitive issue, such as UI. One participant in her 60s had been incontinent since childhood. The story she told included substantial detail about her years growing up in small towns in Alberta, Canada. Although this had little to do with her incontinence, telling that story and having someone listen gave her the confidence to discuss what she described as a “shameful” condition (UI). As a novice researcher, it is particularly important not to structure a participant’s stories out of concern for keeping them on track.

Allowing participants to discuss what they believe is important can be challenging. It requires the ability to remain
in the background at times while participants follow their thoughts. When earlier interviews were analyzed, it was apparent that asking questions of participants during conversational lapses had abruptly changed the flow of conversation. To avoid such disruptions, the interviewer (JM) had to develop a level of comfort with silence. Making brief notes as a reminder to return to a question or provide information at a more appropriate time, usually at the end of the interview, was particularly helpful.

**Ensuring Participants’ Voices Are Heard**
Ensuring that participants’ voices are heard requires a careful balance between being in the background and the foreground of conversations. Two strategies that help to ensure participants’ voices can be heard are: (1) probing to promote richness rather than superficiality of data, and (2) conducting focus group interviews to diminish the role of the researcher.

**Probing for Clarification and Depth**
The goal of qualitative description is to fully capture the elements of an experience or phenomenon. As such, researchers have an ethical responsibility to ensure data are not superficial. Probing for clarification and depth is a qualitative strategy used to further understanding about a phenomenon of interest. It requires attention to cues that suggest a participant might have more to tell. For example, none of the participants in this study spoke about their experience with bladder training, but one commented that she had been advised to “schedule” her voids. Probing more deeply initiated an important discussion of the difficulties she had faced maintaining a rigid voiding schedule and factors that had contributed to her decision to discontinue bladder training. In this case, assuming a more prominent role as researcher enabled in-depth data in an area that would not have been addressed.

**Focus Groups to Facilitate Discussion**
Focus group interviews provide a relatively safe environment for participants because they are not singled out to respond to specific questions. In the current study, vocal and confident members initiated conversations and opened the pathway for others to recount their histories of incontinence. Participants seemed to respect each other’s differences of opinion and were not afraid to express them. As a result, focus group data were particularly participant driven. Less probing was required as participants recalled situations they had forgotten. Comments such as, “While you were talking I was thinking . . .” were common. As group members looked for answers among themselves, they delved more deeply into areas, such as the effect of increasing fluid intake and the relationship between constipation and UI, enhancing depth and breadth of data, and clarifying their perceptions. The role of researcher became one of moderator or facilitator, identifying goals at the beginning of each interview and encouraging/enabling the participation of all members.

**Ensuring Participants’ Perceptions Are Accurately Represented**
The authenticity of a qualitative descriptive study depends not only on the ability to capture participants’ perceptions but also to accurately analyze and represent them as well. Accurate representation begins with transcription of each interview, continues with coding and categorizing, and involves on-going attention to context.

**Ensuring Accurate Transcription**
Conversion of the spoken word into written text is often taken for granted, yet accurate word-for-word transcription is key to ensuring authenticity of data, as well as scientific and ethical integrity. Accuracy in this study was enhanced through 2 rereadings of transcribed data while listening to the tapes. Although the potential for interpolation existed, whereby transcriptions reflect what is anticipated rather than what is actually said, accuracy was also enhanced by JM’s familiarity with both the subject area and the terminology used. The accuracy check was particularly important when an assistant, skilled in transcribing yet unfamiliar with the subject area, was asked to transcribe focus group interviews to hasten the process. It can be difficult to reproduce any group session completely because members frequently talk at once and microphones fixed in position may not pick up all speakers equally. To confirm accuracy, JM reread parts of group conversations that were unclear to the assistant and to the tapes as a whole.

Transcription is, at best, only partial because it does not capture the nonverbal aspects of an interview. Completing data transcription shortly after interviews enabled inclusion of relevant nonverbal communication, such as a participant’s weepiness during a pause in conversation.
Timely transcription was also useful in highlighting aspects of data collection that could be improved. Superficial data jumped off the page and inspired more in-depth probing during subsequent interviews. Accurate transcription set the stage for subsequent content analysis.

**Content Analysis: Ensuring Data-Driven Coding and Categorizing**

Content analysis is the most common form of analysis used in qualitative description and involves systematic reduction of data into coded units that are clustered into categories according to shared characteristics. To ensure authenticity, it is of utmost importance that codes emerge from the data rather than being superimposed on them. This became a challenge early on in the current study. The initial coding strategy involved categorizing data according to the relevant research question (a method JM had used in a previous study). This strategy imposed researcher-driven rather than participant-driven codes and required an interpretive leap from what participants were saying to why they were saying it. For example, several participants reported that they did not know when their UI had started but were increasingly aware of the condition as it became more severe and affected their lifestyle. Coding this increased severity as a factor that facilitated adherence to behavioral strategies, a category predetermined by the research questions, assumed that a relationship existed rather than allowing the data to speak for themselves. Such premature coding can lead to superficial understanding. The coding process was restarted to ensure that the first level of codes identified only the substantive content of the data.

Critical review of coding is an on-going requirement. Because data collection and analysis occur simultaneously in qualitative research, new codes continue to emerge that require reexamination of existing ones.

Criticality and Integrity

Criticality in a qualitative study is a reflection of the critical appraisal applied to every research decision and is a key aspect of a study’s overall integrity. In the current study, the majority of these decisions related to the authenticity of data and have already been discussed. Measures that promoted the overall integrity of the study included consistent reflection on potential sources of bias, specifically...
on the dual role of the researcher, respondent validation, and peer review.

**Reflecting on Researcher Bias**
The researcher is inextricably linked to all aspects of a qualitative research study. A central part of a study’s integrity is the ability of the researcher to actively reflect on his or her biases and how these can influence the overall research process.

**Peer Review**
Peer review facilitates staying true to the goal of qualitative description: remaining close to the data to present a clear picture of participant meaning.

**Conclusion**
In this article, the authors have summarized the processes initiated within a qualitative descriptive study to demonstrate how they contributed individually and as a whole to the understanding of UI self-care. Developing interviewing skills and becoming highly aware of appropriate use of both probes and silence is vital to successful data collection. Recognizing and dealing with the effects of expert clinical knowledge is also crucial. Rigor in data analysis includes ensuring accurate transcription through active (and repeated) listening to tapes. Considerations in coding of data include: letting data speak for themselves, avoiding...
the urge to force categories, and taking active steps to take the participants’ context into account through the use of field notes and descriptive summaries.

These processes are the result of on-going and in-depth reflection and dialogue, particularly regarding commonly accepted concepts, such as theoretical saturation. They reflect attempts to accurately and comprehensively represent participants’ perceptions of factors that affect UI self-care, while remaining open to the evolving nature of the research. Factors that contribute to a study’s rigor and overall integrity ultimately begin with the recognition of a problem that merits investigation, acknowledgment of a purpose for the particular study, and the framing of the research question. From that point onward, each and every decision made should be driven by and remain true to the study purpose and the target population.

The integrity, authenticity, credibility, and criticality of a qualitative descriptive study can only be assessed when these processes are made visible through open and honest accounts of the research process and the provision of evidence to support one’s claims. Such honesty must include a clear discussion of the study’s limitations, as well as its strengths. Some limitations may be the results of decisions made by the researcher and others beyond the control of the researcher. Yet they all affect what is learned from the study and provide context for assessing the relevance of findings. The ultimate test of any study’s integrity is its usefulness, particularly how the findings resonate with the target population and the potential for further research that it inspires.

KEY POINTS

✔ Maintain a flexible sampling plan.
✔ Design loosely structured topic guides.
✔ Develop interview skills to promote participant-driven data.
✔ Transcribe carefully and in timely manner.
✔ Ensure codes emerge from the data and reevaluate throughout analysis.
✔ Pay on-going attention to context related to participant, discussion, and interview.
✔ Validate participant perceptions throughout and at the end of each interview.
✔ Review findings with peers.
✔ Reflect consistently on the role of the researcher.

References


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**2005 Reviewers**

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When assessing the general population, it is observed that 27% or 3.2 million of the adult population in the United States has venous disease. Of this group, 2% will develop a leg ulcer. Approximately 500,000 people are treated for leg ulcers each day. Venous stasis ulceration can be chronic and is often recurring, with 65-70% of those who have had one leg ulcer eventually developing another.1

More than 60% of the population is considered to be overweight. Thirty percent are considered to be obese, defined as a body mass index (BMI) equal to or greater than 30.2 Numerous systems are affected by increased weight, with the risk of developing weight-related complications directly correlated to the degree of obesity and the distribution of that weight.2 Diabetes risk increases with the degree of obesity, those with a BMI equal to or greater than 30 being 3 times more likely to develop this disease.3 Also with obesity comes the risk of hyperlipidemia and heart disease, and with extreme obesity comes the risk of lower extremity edema, thromboembolic disease, skin compression, intertrigo, fungal infections, and venous stasis ulcers.2 In addition to obesity, risk factors for venous stasis ulcers include varicose veins, occupation, history of obesity, and pregnancy. Much of the difficulty in preventing venous ulcers is the inability of the patient to perform proper foot and skin inspections and perform adequate hygiene.

Contributing Factors

Chronic hypertension and edema restrict flow, thus impairing venous return. The resultant venous stasis leads to extravasation of fluid into the surrounding tissues, with the resulting characteristics of venous insufficiency (Figure 1). Although the exact mechanism of ulceration is unknown, all theories suggest inflammation and ischemia at the capillary level as the ultimate cause.4 Typical findings for venous ulcers are listed in Figure 2.

The following 3 case studies all illustrate venous ulcer disease complicated by comorbid conditions and morbid obesity.

Case Study 1

This patient was a 46-year-old female who worked as a cashier in a grocery store. She typically spent between 10 and 12 hours a shift sitting on a stool with her legs dependent. She was also obese, weighing 384 lb. In addition to being diagnosed in her early 40s with type 2 diabetes, the patient had suffered for years with lower extremity lymphedema. Her laboratory work was done preoperatively with unremarkable results; her albumin was 3.5 mg (normal 3.0-5.0 mg). She had developed an ulceration to her leg, which began in a pattern that indicated venous stasis ulceration (Figure 3). The wound began when she bumped against her workstation. The wound was shallow with diffuse edges, and it drained constantly. The base of the wound was essentially clean, although healing did not progress with the initial courses of wound treatment. Venous Doppler studies were done, which revealed failed valves in the perforating veins. No changes were made in her work schedule, nor did she agree to compression therapy. To complicate matters, she missed appointments for care at home and follow-up care with her physician, so her ad-
unfortunately impeded the healing process. She maintained that they were too hot and unattractive for wear. Leg elevation was advised. She either sat on her work stool or in a standard chair with her legs dependent. Because of her weight and height, she could not independently cause her chair to recline, so a footstool was provided, which permitted her to elevate her feet while sitting. The skin on her legs and feet was dry, so she had a family member assist her in applying lotion to her skin. The home health nurse also applied lotion during her visits for wound care.

- Edema
- Lipodermatosclerosis
- Dry skin, weeping may occur, may have dermatitis
- Hemosiderin Staining
- Pulses normal unless arterial disease present
- Ankle flare

**FIGURE 1.** Characteristics of venous insufficiency.

- Located near medial ankle, (gaitor area)
- Irregular in shape, granulation tissue often present with slough possible
- Wound exudate is usually heavy
- Wound usually shallow in depth

**FIGURE 2.** Characteristics of venous ulcers.

herence with wound care was limited. The wound failed rapidly, with infection and necrosis to the tissue. A diagnosis of necrotizing fasciitis was made. The wound was debrided, with a resulting deep wound that measured approximately 23 × 30 cm. Numerous dressing modalities were trialed, including silver sulfadiazine cream, calcium alginate, growth factors, and collagen. A skin graft was ultimately performed. Her comorbidities played a significant role in her healing potential.

On recommendation from the wound care team, the patient purchased a pair of open-toe sandals that had expandable straps to permit size changes during the day. Despite regular education on the role of compression in wound healing for venous stasis disease and lymphedema, she nonetheless persisted in her refusal to wear compression, which

Nutritional status was assessed, and the patient had an albumin of 2.4 mg. Dietary consultation addressed nutritional supplementation, food and beverage restrictions, and recommendations to improve her condition. Water intake was also poor, and the patient was advised to increase her fluid intake. Approximately 90% of the graft took, leaving about 10% of wound along the lower edge to be resolved. There was drainage and odor from the wound. The most effective approach to the wound protocol was silver and charcoal dressing, applied 3 times per week. The dressing provided some inhibition to new bacterial growth, while the charcoal eliminated the odor improving her quality of life at home and in public.

**Case Study 2**

Mr G. is a 54-year-old man with chronic venous stasis disease, lymphedema, congestive heart failure, morbid obesity, and estimated weight of 400 lb, and type 2 diabetes. His blood sugars ran between 185 and 210 mg/dL. He had resolving ulcerations improved with multilayer compression wraps. When the author assessed this patient, he had healed skin ulcerations though the skin, which was thick and dry with areas over the ankle area with friable skin (Figures 4 and 5). Some areas would occasionally develop blistering and weep, as shown in Figure 6.

For this patient, the focus was skin care education and prevention of further ulceration, as well as management of edema. To accommodate the circumference and the length of his leg, 1½-compression wrap kits were used initially, reserving the other half of the kit for the next dressing change. The goal was to reduce as much edema as tolerated and then move to a management compression strategy. Skin care was provided before wrap application.

He was moved in to compression wraps that had adjustable straps. He used a long gripper device to grasp the Velcro straps. On the follow-up visit to assess his ability to manage the system, dry skin with flaking was observed, as
seen in Figure 7. It was clear that part of his problem rested with his inability to reach his leg or foot to apply the lotion. To facilitate this, a long-handle dish sponge was used, covering the sponge with a piece of plastic wrap. Lotion was applied to the wrap and thus applied successfully. The wrap was smooth, so it eliminated any risk of scratching the skin.

This patient wore a Velcro strap shoe purchased through a mail-order catalog for $12. They had no-slip soles, could be adjusted throughout the day, and had a soft-top collar that did not apply any pressure around the ankle area. Although he was limited in his ability to exercise because of shortness of breath, he was willing to do an aquatic program through a local hospital. He tolerated a 30-minute program without stress or trauma to his joints or legs. He was able to continue with the compression wraps and keep lower extremity swelling to a minimum. He was discharged from the program after several weeks of care.
Case Study 3

Ms A. is a 37-year-old female with severe lymphedema, chronic venous hypertension, diabetes, severe morbid obesity, and chronic recurring ulcers to the lower extremities. This patient’s last documented weight was 421 lb when she was 32 years of age. She was not mobile and used a wheel chair to move about. Her feet were constantly dependent and she used her feet to propel the chair. She did not wear shoes because she could not find a pair to fit, nor could she reach down to put anything on. Thus, her feet were dry, cracked, and deeply callused. Moreover, she was unaware that she had developed any wounds until a family member noticed drainage on her chair cover. It was determined that these wounds had occurred because of Ms A’s repetitive hitting against the leg pad on the footrest (Figures 8 and 9).

The wounds exuded yellow serous drainage and were negative for odor. Initial laboratory work revealed a white blood cell count of 189/L (normal: 5-10^9/L) and an albumin of 2.3 g/dL (normal range: 3.5-5.0 g/dL). The patient’s blood sugars were monitored by home health, and her values were consistently greater than 250 mg. She had cellulitis, and was placed on IV antibiotics followed by oral antibiotics. The focus of wound care was to reduce bacteria in the wound and provide protection. A silver dressing was applied to the wounds, and each leg was wrapped with 2 multilayer compression wrap kits. This was initially done every other day and gradually was decreased to once a week. An antibacterial moisturizing cream was applied to the skin before the wrap application.

Aside from lying on the bed, this patient could not elevate her legs because of their size, her general strength, and her wheelchair design. A short series of steps was set up so that she could wheel in front, then walk her feet up 3 steps, and then rest her legs on the top step, which was padded. It took some practice for her to perform this but worked well once mastered.

In addition to being diagnosed in her early 40s with type 2 diabetes, the patient had suffered for years with lower extremity lymphedema.

Podiatry was consulted to evaluate and treat the deep calluses on her feet and to manage her toenails. A pair of slippers was located, which were easy to slip on without having to bend over; she was encouraged to use the slippers to improve foot health and prevent additional wounds from developing in the deep fissures. Education was done to ensure she understood the risk of more wounds should her feet crack or become more damaged. The patient did not complete follow-up blood work, however, nor did she keep appointments once discharged from home healthcare. This case thus demonstrates the benefit of ongoing home-care designed to motivate the patient with encouragement in compliance with wound care and prevention.

Discussion

Often in the early stages of venous disease, legs may feel tired or heavy when dependent. Numerous preventive measures can be taught to the patient with edema, venous stasis disease, or ulceration. These include keeping the patient’s legs elevated as much as possible to decrease venous hypertension and swelling or edema. Properly fitted support hose or stockings are critical in minimizing the trauma
to skin. Tight socks may impede circulation or become embedded in the skin similar to a rubber band, leading to increased edema and possibly ulceration. Correctly fitted shoes that allow for changes in the size of the patient’s foot and ankle are also vital in preventing breakdown at the joint area. To ensure that adequate compensation can be made for limb size changes during the day, the patient’s foot should be professionally measured before each shoe purchase.

To determine if there are any breaks or skin damage needing to be addressed, good visual assessment of the patient’s lower extremity and foot is critical. For the patient who cannot bend over to see his or her feet, placing a standing cosmetic mirror on the floor with the lighted magnified surface up can allow the patient to see. Regular visits to the podiatrist are recommended to ensure that a medical evaluation is done and ensure that the patient’s nails are trimmed to prevent digit injury.

Excess weight does not correlate with good nutrition. Obese patients may suffer from malnutrition. As such, blood work should be performed to determine if the patient has adequate dietary status for prevention and healing. Dietary consultations may benefit the patient, not only for weight loss but also for improving intake to maximize well being.

**Compression**

Compression wraps are the most important treatment for patients with lower extremity edema. These wraps help reduce swelling and improve venous return. Appropriate wound care, with absorbent dressings under the compression wraps, is essential to the healing process. Evidence suggests that multilayer wraps are more therapeutically effective, because they can sustain a higher level of compression over a longer period of time. Leg elevation assists with venous return and may assist pain management.

**Nutritional status was assessed, and the patient had an albumin of 2.4 mg. Dietary consultation addressed nutritional supplementation, food and beverage restrictions, and recommendations to improve her condition.**

Inadequate compression can prevent wound healing, increasing the risk of infection. Establishing realistic goals for care between the WOC nurse and the patient are necessary to determine services and expectations. For numerous reasons, some patients are unable to make major lifestyle changes that the WOC nurse believes are in their best interest. This can lead to a situation of conflict and resistance, which must be resolved in some mutually agreed way to allow care.

**References**

A short series of steps was set up so that she could wheel in front, then walk her feet up 3 steps, and then rest her legs on the top step, which was padded. It took some practice for her to perform this but worked well once mastered.

Commentary by Janet M. Davis

This case series discusses 3 young patients with chronic venous insufficiency (CVI), lymphedema, diabetes, and leg ulcers. All of these conditions can result from morbid obesity, which the 3 patients had in common. The WOC nurse faces many challenges in the management of the wounds and underlying conditions in this patient population.

Although a plethora of information regarding chronic venous insufficiency is available, a review of the literature revealed little with a specific focus on venous disease and compression therapy in the obese patient. Padberg and associates studied patients with venous ulcers and a body mass index (BMI) greater than 40. The obese individuals had more severe CVI symptoms than those who were not obese. The symptoms were described as recalcitrant ulcers, prolonged healing, and more frequent recurrence of ulcers. Compliance with elastic compression was reported as poor primarily because of the physical limitations or difficulty in applying the compression garments.

Danielsson and colleagues investigated the effect of being overweight on CVI. As with Padberg’s group, Danielsson et al noted a significant association between BMI and clinical severity of chronic venous disease. BMI greater than 25 correlated with the likelihood of skin changes and ulcers. Additionally, they determined that excess weight was a separate risk factor for skin changes in patients with CVI.

Prevention and management of CVI and leg ulcers is predicated on improving venous return by improving the calf muscle pump, thus raising the interstitial pressure and reducing the venous hypertension. To assist venous return, use of “The 4 Es” method (elastic, exercise, elevation, and education) is one way to approach the patient. The first component of the treatment plan is elastic, which refers to any form of compression (even nonelastic in some cases). Externally applied graduated compression is the single most important intervention in the prevention and treatment of CVI and venous ulcers. Target ankle and calf compression pressures in a “normal-shaped leg” are 30-40 mmHg and 15-20 mmHg, respectively. Approximately 70% of cases will heal if these pressures are achieved. Currently, the best evidence available supports the use of elastic multilayered compression in the treatment of venous leg ulcers.

Achieving and maintaining therapeutic compression in the patient population that is obese can prove difficult. In many people who are obese, a normal leg shape may not be present. As weight increases, legs may become misshapen and lose normal contours. Creases or folds may deepen at the ankles and knees, along with edematous overlapping skin, thus making compression wrapping more challenging. Lymphedema often occurs in the obese, as in this case series. Left untreated, this will contribute to the malformation of the legs and persistent edema.

Abnormal leg shapes and contours increase the challenge for the WOC nurse as bandages may become displaced, roll, or form constricting bands around the lower legs. Wrapping techniques to achieve therapeutic pressures vary with each patient and his or her unique leg shape. Target subbandage pressure at the ankle is 30-40 mmHg, with a gradual decrease up the leg as the circumference increases. In patients who are overweight or obese, the circumference of the ankle and calf may be nearly equivalent; therefore, the subbandage pressures would not be graduated and make it difficult to achieve therapeutic pressures.

Compression wraps are the most important treatment for patients with lower extremity edema.

The best evidence shows that the elastic and multilayer systems provide the most efficacious compression. However, no single compression wrapping or bandaging system is more effective than another. Regardless of the form of compression used, it should be used as directed by the manufacturer. One of the challenges facing the WOC clinician is finding compression wraps that are long enough to accommodate the increased girth of obese extremities.

Elastic hose have been the gold standard for prevention and treatment of chronic venous disease. They are available in standardize sizes or may be custom fitted to provide therapeutic compression at the ankle and knee. The biggest disadvantages have been cost and ease in application.

The nonelastic paste wrap (Unna boot) has been used effectively for the unusual-shaped leg. The paste wrap and
A plethora of information regarding chronic venous insufficiency is available, a review of the literature revealed little with a specific focus on venous disease and compression therapy in the patient who is obese.

Multilayered compression wraps are designed to be adapted to various ankle and calf circumferences to achieve therapeutic pressures of 17 mmHg below the knee and 40 mmHg at the ankle.

Short stretch bandages can be used to compress the veins and resist changes in force during walking. This provides low resting and high walking pressures for venous return and edema management.

Tubular compression is another option for the patient who is obese. These bandages require less expertise and are as efficacious as short-stretch bandages in treating venous ulcers. This bandage, which comes in a variety of sizes, widths, and lengths, may be applied by the patient (independently or with use of a sock aid), caregiver, or clinician. It can be applied as a single or double layer. All of these features make it a good option for the patient who is obese. It can serve as a starting therapy, and patients can be reevaluated for a different compression therapy once edema is reduced and contours change.

Patient adherence with compression therapy is crucial to achieve positive outcomes. “Starting low and going slow” will address the concerns of patients who have never had compression or who are hesitant about its use. Any compression is better than none, and the goal is to reach therapeutic levels of compression for wound healing. Wearing compression, however, is not an easy task for patients. Rapport and trust are needed to promote compliance. Starting with subtherapeutic pressures allows patients to acclimate to the bandages easier. Once the patient notes healing changes, he or she may be more accepting of the therapy and the clinician can then graduate to therapeutic levels of pressures.

Exercise to support the calf muscle pump is the second component of the treatment plan. The calf muscle pump action propels venous blood back toward the heart with each calf contraction. The heel-to-toe step of gait of walking provides the means for calf muscle contraction squeezing the deep and superficial veins. The heel-to-toe gait can change significantly with morbid obesity. Weight and fat distribution in the thighs, hips, buttocks, and lower legs dictates the gait style and the ease of walking. The traditional heel-toe gait changes to a hip-hip stride (absent heel-toe gait) that is sometimes referred to as a side-to-side lurch. The individual looks like he or she is waddling or swaying as he or she swings the torso and hips side to side to propel forward the body and legs. This new gait style results in a calf muscle pump deficit or failure. With a poor ejection fraction of the calf pump, venous pressure rises.

Loss of the calf pump lessens the therapeutic effects of the inelastic and short stretch bandaging systems because both systems rely on an intact calf pump mechanism to provide resistance. The inelastic bandage does not yield when the calf muscle expands against it, thus increasing the subbandage pressure and promoting venous return. Short stretch bandages work best by resisting the calf muscle during walking. Walking also may be reduced in the obese because of difficulty in moving, increased shortness of breath, or pain in legs and feet from the weight burden.

One option to support the calf muscle pump is to instruct the patient to perform ankle exercises that require dorsiflexion. This activity automatically activates the calf to contract and relax, which improves venous return and lowers venous pressures.

Currently, the best evidence available supports the use of elastic multilayered compression in the treatment of venous leg ulcers.

The third component of the treatment method is elevation. When raising the foot above the level of the heart, gravity assists venous return, thus reducing venous pressure and edema. Elevation has long been a mainstay of edema management but can be difficult for patients who are obese. To begin with, patients do not realize opportunities available to perform leg or foot elevation. Even 15 minutes of elevation 3 times per day enhances gravity and venous return. In the individual who is obese, elevation proves challenging. For example, in the individual who is obese, lying flat with legs elevated may limit lung volume because the diaphragm rises, thus producing shortness of breath. Some patients who are obese may have hip arthritis, making it difficult to raise their leg high enough to prop up their foot. Any level of elevation that can be achieved would be beneficial.

Education is the last component of intervention and plays an appreciable role in patient compliance. Patients must see themselves as the key player having the greatest level of power over outcomes. The more information they have about the importance of improving venous return and their role in it, the more likely they are to have positive outcomes. They must internalize that they determine how well they heal or stay healed. Patient adherence to
the plan of care in the previous cases significantly affected the outcomes.

In Case 1, the lack of compression and elevation prolonged the wound healing. This ultimately led to a potentially life-threatening infection, requiring hospitalization and surgical intervention. It is impossible to know for sure if the necrotizing fasciitis would have been avoided, but one can speculate that if the sooner the ulcer heals, the sooner the risk of infection goes down. Also, the longevity of the split-thickness skin graft is at stake if this patient does not keep her venous pressure down. Even with a 90% take, the graft still is at risk for future breakdown.12

Despite age and comorbid conditions, the patient discussed in Case 2 demonstrated the best outcomes with consistent use of compression. This patient also participated in an exercise program, further improving his potential for healing.

**Exercise to support the calf muscle pump is the second component of the treatment plan.**

Case 3, the youngest patient with significant problem ulcers also did not have compression. She may have had some exercising of her calf muscle pumps by virtue of using her feet to propel her wheelchair. She also was given a set of steps to elevate her feet, a creative approach to her situation.

The WOC nurse provided appropriate topical therapy for each patient scenario and made attempts to incorporate therapeutic interventions for improving venous return. Nonadherence to the plan of care in 2 of the 3 cases, however, led to less optimal outcomes. A holistic approach, based on accurate assessment can help in developing the best management plan for the unique needs of this patient population.

**References**


**Nutritional Assessment Commentary by Elizabeth Evans**

The WOC nurse should include a nutritional assessment as part of her wound assessment. Use your available resources, such as registered dietitian consult, or request appropriate laboratory work and initiate a patient completed food and fluid diary. This is an important component for any patient—from the elderly who are anorexic to the patients who are obese.

The first step is an accurate height and weight to establish caloric needs. A.S.P.E.N. (American Society for Parenteral and Enteral Nutrition) recommends between 25 and 30 total kcal/kg/day for patients who are catabolic. The Harris-Benedict formula can also be used to estimate caloric needs. (Men: RMR [resting metabolic rate in kilocalories per day] = 66+13.75 (wt/kg) + 5 (ht/cm)−6.8(age) × stress factor (1.0-1.5). Women: RMR = 655+9.6 (wt/kg)+ 1.8 (ht/cm)−4.7(age) × stress factor (1.0-1.5).2

There are a few studies using a hypocaloric nutritional regimen for use during the acute phase response in critical illness in the patient who is obese. The hypocaloric regimen was described as 2 gm protein per kg of ideal body weight (IBW) and 50% estimated caloric needs. It is hypothesized that this promotes the endogenous fat stores to be used for energy. This regimen was used successfully in parenteral and enteral nutrition regimens. However, patients older than 60 years did not have successful outcomes, and the long-term patient outcomes with this regimen is unknown.2

Labs to be monitored include complete blood count (CBC), comprehensive metabolic panel (CMP), inflammatory markers if infection is suspected (sedimentation rate, C-reactive protein), thyroid stimulating hormone (TSH), prealbumin, hemoglobin A1C. Albumin is part of the CMP along with electrolytes, kidney, and liver function tests. The prealbumin level can be drawn on a weekly basis to evaluate the nutritional changes from protein supplementation.1
An initial 3-day food diary gives you the ability to quantify the patient’s baseline food/fluid intake. Be sure to instruct the patient how to measure food before initiating the diary. Numerous books are available to calculate the consumed calories. One can also request this from the consulting dietitian. This diary will also highlight some of the patient’s food preferences and typical method of meal preparation (ie, fast foods, microwave, and snacks).1,4

Also, the patient who is obese should be asked about his or her mood and psychological well-being, because depression is more common among patients who are obese. There are numerous validated depression scales that are available. There are studies that have reported that patients who are obese believe they are not treated respectfully by healthcare professionals.5 A review of the patient’s medications is important. Report to the primary care provider if patient reports depression and request an evaluation of this. Older antidepressants (tricyclic antidepressants and MAO inhibitors) increase appetite and weight, so they are not the drugs of choice. Select serotonin reuptake inhibitors (SSRIs) may help depress appetite; therefore, they are one of the antidepressant drug types of choice, along with bupropion, which has the least appetite-stimulating effect profile. Ensure that anyone who is placed on antidepressants is followed monthly by his or her primary care provider for the first few months for any untoward side effects, including suicide.6

**Dietary Changes**

The Institute for Clinical Systems Improvement (ICSI) has recommended the following for the prevention and management of obesity:

- Assess the patient’s readiness to lose weight.
- Negotiate realistic achievable goals, and have the patient be accountable to practice new behaviors that produce and maintain weight loss.
- Pharmacotherapy, when used for 6 to 12 months, along with lifestyle modification (nutrition and activity), can produce weight loss.
- Bariatric surgery is indicated in carefully selected patients with BMI > or equal to 40 or 35-39 BMI who are at high risk for increased morbidity or mortality.
- Initiate a low-fat low-calorie diet. A successful weight management diet is 40 gm fat (24% calories), 200 gm carbohydrate (56% calories), 70 gm protein (19% calories). A low-fat diet (25-30%) is considered the conventional weight loss therapy plan.
- Encourage behavior management strategies that include weekly weight checks, food journals, and monitoring of healthy routines.
- Encourage regular physical activity. All patients should be encouraged to do at least 10 minutes of physical activity above what they are already doing every day and gradually increase the amount of time and intensity of activity.4

The US Preventive Service Task Force (USPSTF) found evidence that medium-intensity to high-intensity counseling interventions can produce medium to large changes in average daily intake of core components of a healthy diet. The USPSTF concluded that such counseling is likely to improve important health outcomes.7

**References**

I am Ken Clare, a 44-year-old white male, 6 feet tall, 238 lb, who lives in the United Kingdom. My body mass index (BMI) is 30. I am overweight, and yes, I struggle as many European men my age do with the energy intake vs output equation. This is fairly unremarkable in itself. What makes my story different is that although I have been overweight all my life, my weight reached a peak of 475 lb (BMI 64 kg/m²) in September 2002.

Here is short account of my journey from there (475 lb) to here (238 lb) and some of the work I have been involved in along the way.

My pathway toward 475 lb started with my mother, who had a history of yo-yo dieting, and my father, who was underweight all of his life—a situation that led to a loving home life wherein affection was “abundant” and typically expressed through fried food and sweet treats. My adolescence was resplendent with high-fat high-calorie snacks. As I got older, my chosen career of nursing led to unsocial hours. To compound matters, I kept making unhealthy food choices and engaging in a social life wherein the consumption of alcohol was the norm. Over the years as my career progressed, so did my waistline. Before my surgery, my diet was still high in saturated fats and calories. I would often eat take-out or highly processed convenience meals. My appetite was enormous and insatiable. I would eat at an alarming speed, and I honestly never knew what it felt like to suffer from hunger or feel satiated.

Approaching the new millennium and the ripe old age of 40 and after many abortive attempts to lose weight, I decided to take my health more seriously. I was getting sick of being overweight, both figuratively and literally. Moreover, in the United Kingdom, individuals who are obese are one of the last “safe” targets, and I hated being a “target.” After talking to my family doctor, I was referred to a specialist obesity management clinic. Moreover, after 2 years of pharmaceutical, dietetic, and psychologic counseling, I was finally referred to the surgical team that would undertake my surgery.

Armed with all the information Discovery Health Channel could provide, I approached my pending bariatric operation with trepidation punctuated by excitement. I also surfed the Internet furiously but was disappointed to discover that the little information available was usually North American-specific and more often than not provided a female-slant on this surgical intervention. I am not certain if it was just my imagination or my admittedly pessimistic outlook, but many Web sites were dedicated to memorials to dead people or expound the negatives of bariatric surgery.

Foolishly, I attended my first consultation alone and entered it expecting to be offered a banding-type procedure. I knew everything, and indeed, this is the information I had gleaned from the Discovery Health Channel and the Internet. I left terrified. Although I am a registered nurse and well versed in Gray’s Anatomy, the in-depth discussion of the gross anatomy of one’s gastrointestinal (GI) tract becomes somehow difficult to follow, particularly when applied to oneself. I left the consultation dazed, confused, and unclear regarding which procedure I was to undergo. The next day, I called the medical consultant’s secretary, who told me that I was put on the waiting list for a Roux-en-Y gastric bypass.

Before my surgery, it was explained to me that the expected perioperative mortality rate was approximately 1%, which surprised me because I believed it was probably near 50%. I also was relieved to hear that advances in anesthesia and expertise in nursing care had improved outcomes. However, even a 1% mortality rate is bad enough, especially if that statistic might happen to you. I am not a gambling man but realized that without further intervention, my mobility would decrease and I likely would be dead within 2 years.

Here I would like to take stock of the position I found myself in before my surgery. At dawn of the millennium, I weighed 475 lb (216 kg or 34 stone for those of you from Australia or the UK), my waist measured 64 inches and my chest 66 inches. My mobility was limited to approximately 50 yards aided by two elbow crutches. I was in constant

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pain from arthritic changes in my hips and knees—pain that was further compounded with referred sciatica. I suffered from frequent fungal infections in my skin folds and from eczema on my hands and legs. I had irritable bowel syndrome and would often pass between 10 and 15 stools each day. I suffered from stress incontinence of urine. My clothing was all purchased at premium through specialist clothing suppliers on the Internet. It was often sneered at or ridiculed by younger people on the street. It might be politically incorrect, but many UK residents believe that people who are obese are one of the last safe targets for abuse. They are free from any legal recourse or civil action. My mood was low and self-esteem nonexistent. However, I was an outwardly successful upwardly mobile middle manager employed in NHS informatics.

During the 6 months before my surgery, I found that my biggest challenge was building enough courage to tell people about my pending bariatric surgery. We have a daughter who was 12 years old when I underwent bariatric surgery, and I found that the discussion of the impending operation, specifically its risks vs my reasons for having the surgery, proved to be a particularly difficult topic for my family. My grandmother, however, a stoical woman in her late 80s, was more realistic: “Tell them to sew his belly up when they are in there.”

On September 4, 2002, I underwent an open Roux-en-Y gastric bypass, with limb lengths of 1.5m each. I woke soon after my surgery in a high state of dependency. Although I was clearly aware of the pain in my abdomen, I was far more troubled by the intense pain radiating down the back of my left leg. As such, I spent an extremely agitated first night in the high dependency unit (HDU) of the hospital. As a trained nurse, I was shocked to discover that postoperative analgesia was kept to a minimum. I could clearly understand the reason for this measure preoperatively, but such pharmacologic economics immediately postoperative simply did not make any sense to me. I was in pain. The next morning, I was mobilized with assistance, and although I was clearly in deep discomfort, I found that I was extremely pleased that the nurses were giving me the opportunity to wash. More importantly, I was deeply impressed with the individualized nursing care I received.

On return to the general ward, I had all my care needs met at all times with extreme sensitivity paid to my large size and relatively helpless state. I was akin to a 475-lb infant. I received fluids well, and I soon graduated to the famous sloppy diet. Various bits of tubes were soon removed, and all progressed well. I was discharged home on the fifth postoperative day.

Home, however, presented a whole new set of challenges. The stairs, which had been a huge barrier preoperatively, now were insurmountable. The good news is that I am fortunate: my wife, who is a qualified occupational therapist, made adaptations and was able to procure every conceivable aid available to enhance my mobility and facilitate ability to re-engage in daily living activities. Community nurses attended to my needs and extracted my staples on postoperative day 14. During this time, I had acquired a wound infection, which required a course of antibiotics.

I was seen at the outpatient clinic at 6 weeks postop and was shocked to learn that that I had lost 63 lb. At that time, I was told to begin the transition to more solid food. That endeavor proved to be miserable, however, because every time I tried to eat something more solid than soup, I would immediately feel pain and wretch until I vomited and until the pain my stomach subsided. The sad fact, however, is that I believed this “recovery” was normal, how this operation was supposed work. I had no measure to know that this was not the normal sequence of events. I tried antiemetics and eventually fell back to sips of clear fluids. My dietary intake dropped below 400 calories a day, and I deteriorated. I began having visual and olfactory hallucinations, and my mood was mining new depths. In retrospect, this ordeal must have been extremely difficult for my family, because the smell of food would make me nauseous. I remember Christmas 2002—the effort of sampling a small amount of food, then spending an hour with my head in a plastic bucket, retching. As I heard the Christmas celebrations in the next room, I seriously questioned my wisdom in having this operation. Yet, in my ignorance and solitude, I still believed this was how this “magic surgery” was supposed work.

Shortly after surgery, I had vowed to my surgeon that I would build a Web site designed to tell people about his service and describe the marvels of bariatric surgery. Indeed, I knew from personal experience that the Internet is a truly enabling technology—especially for individuals who are morbidly obese. However, after the postoperative analgesia wore off and I found myself grappling with new challenges, I soon forgot my pledge to build this Web site. In January 2003, my wife reminded me of my promise. Consequently, mostly as a project to divert my attention from the constant nausea and to occupy my busy mind, I set about getting to work on building the promised Web site. After consultation with my surgeon, we agreed to offer an informational service to all bariatric patients, regardless of surgery provider or surgery type. More importantly, I knew from personal experience that I wanted to provide something to which British men could relate.

I taught myself Microsoft FrontPage and set-up an online discussion forum using Snitz Forums. The prospect of learning new skills, plus the sheer challenge of building and populating this Web site provided me with a useful diversion. With the help of a health-librarian friend, WLSInfo went online on the January 15, 2003, at www.wlsinfo.org.uk/. Initially, I had expected little interest in my little Web site project, but soon the trickle of members turned into a flood. Excited by this success, I used every contact and resource available to build WLSInfo. I dearly wanted to sharpen my skills to improve this service.

In late January 2003, I underwent a gastroscopy and dilation. The surgeon said there was a small stricture, and
after he dilated this stricture, I felt the difference immediately. After many months, I was finally able to tolerate semi-solid food and soon graduated to solids. Along with the much-needed energy boost, being able to stomach solid foods provided a huge boost to my morale as well.

In March 2003, we set up the first of a series of local support groups to provide ongoing information and support to people in the North West Area. We decided early on that access to the support groups should be open to bariatric patients, regardless of provider and regardless of surgery.

After an admittedly rocky recovery, I finally returned to work on the fifth month postop, weighing 309 lb. I was full of energy and constantly amazed by the positive praise and encouragement I received from my coworkers. Indeed, I had chosen early on in my journey to tell people the truth about my weight loss. I realized, however, that not everyone found this topic as fascinating as I did, and I have no doubt that there were some people who thought less than one found this topic as fascinating as I did, and I have no doubt that there were some people who thought less than charitable thoughts about me. However, on face value, people were generally supportive—and really, that is all that mattered. Indeed, I know from personal experience that bariatric patients often shoulder an additional psychologic burden of admitting they have a problem with food that bariatric patients often shoulder an additional psychologic burden of admitting they have a problem with food in the first place. Although I am sure that once one starts down the road toward a healthy weight, one will soon discover that people of all shapes and sizes have some sort of issue with food and body image.

Shopping for new clothing and experiencing increased energy and interest from the opposite sex can sometimes introduce new challenges into well-established relationships. As a middle-aged man in a happy stable relationship, my wife and I worked through the changes we encountered as a family. I have seen people emerge with new confidence and esteem levels, and this sometimes can be disconcerting for their significant others.

The first year is well documented as being the ideal window of opportunity for the Roux-en Y patient. I was fortunate to shed 227 lb in the first 12 months. I adopted healthy changes to my lifestyle and went from being almost immobile to a regular gym attendee. When I first started going to the gym, getting changed took longer than my workout, but by 12 months postop, I took part in a 5-km road race alongside my surgeon, wife, and personal trainer.

In November 2003, I was deeply honored to be presented with the Gastro-Enterology & Stoma Care Nursing Award and the Nursing Standard Nurse 2003 Award for having established the information and support Web site, WLSinfo. Still, it seems strange to me that the pinnacle of my nursing career was achieved working on a project that was unpaid, voluntary, and managed from my spare bedroom.

Life 2 years out remains a challenge. Like most men my age, I find the energy intake vs output equation difficult to balance with my busy lifestyle. Now I have a fighting chance—I can at least take part. Today, my first priority is to eat healthy foods, eat enough protein, and take care to avoid foods with more than 5% fat content. Chicken and fish are important staples of my diet. I drink copious amounts of water, and I no longer drink alcohol.

My blood serum levels of minerals and key fat-soluble vitamins are monitored regularly. I take a low-dose proton pump inhibitor, calcium, zinc, and a multi-vitamin supplement.

My digestive tract replumbing, however, still yields stools that are difficult to manage anywhere but the home environment. Steatorrhea is a common problem among the post Roux-en Y population, although many bariatric patients feel uncomfortable talking about this problem with their healthcare providers. Our Web site knows no such boundaries, however. People happily share suggestions on dealing with this and/or any other problems they face along the road toward a more healthy weight and lifestyle.

Today, as I survey the current weight loss surgery information packets and bariatric support scene in the United Kingdom, I am pleased to report that things have changed for the better. After a successful media campaign involving local and national press, radio, and television and numerous speaking engagements, Britain’s health professionals and the general public’s knowledge and awareness of bariatric surgery is now much greater than it was when I first started seeking information. Today, those who enter bariatric surgery consultations with healthcare professionals are armed with detailed information. They are also made to realize that bariatric surgery is not a quick fix but instead requires self-efficacy and commitment to bring about fundamental changes in their lifestyle. As a man who prides himself on keeping his promises, I started WLSinfo out of feelings of obligation. Learning how to build this Web site also proved to be an excellent coping tool that distracted me from my postoperative recovery challenges. Today, I am proud that this “distraction” has grown to include the following services to members:

- Quality-assured information online at www.wlsinfo.org.uk/.
- A Web-accessible library online at www.fade.nhs.uk/.
- Quality-assured printed information and diagrams.
- A network of support groups.
- An information and support telephone help line.
- A discussion forum online at www.wlsinfo.org.uk/newweb2/forum/default.asp.

WLSinfo has support from 16 groups throughout the United Kingdom and more than 1,600 members. The WLSinfo Web site receives 6 million hits per month. We have achieved national recognition for our work in what was previously an underserved community. More importantly, the NHS provision for bariatric surgery patients continues to grow. WLSinfo is now recognized as a key player in the obesity field throughout the United Kingdom and throughout the world.

The remarkable thing is that I look and feel “unremarkable”—a feeling I never believed I would achieve, and I must say, that feeling is priceless.
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