Class III Obese Patients: Is Your Hospital Equipped to Address Their Needs?

Lea Anne Gardner, PhD, RN
Senior Patient Safety Analyst
Pennsylvania Patient Safety Authority

Christine Gibbs, MSN, RN
Nurse Manager
York Memorial Hospital

ABSTRACT

Safely caring for class III obese patients brings a unique set of demands to healthcare facilities and their staff. Class III obese patients require special equipment that is big enough and strong enough to support them safely while in the care of others. A review of five years of events reported to the Pennsylvania Patient Safety Authority identified 180 equipment-use event reports involving class III obese patients. In July 2012, a statewide survey was sent to Pennsylvania hospitals to determine how prepared they were to care for this patient population. The survey identified that 36.5% (n = 23 of 63) of respondents indicated that their hospital does not have an evacuation plan in place for moving class III obese patients to a safe location in an emergency. An additional finding was that more hospitals rent versus own bariatric equipment, which may provide insight into why, in some of the Authority event reports, bariatric equipment was not available or why patients had delays in care. Addressing equipment challenges can include tracking the number of class III obese patients at the facility, educating staff about the acquisition and use of bariatric equipment, providing sensitivity training, and updating policies and procedures for class III obese patients. (Pa Patient Saf Advis 2013 Mar;10(1):11-8.)

Corresponding Author
Lea Anne Gardner

Scan this code with your mobile device's QR reader to access the Authority's toolkit on this topic.

INTRODUCTION

More than one-third (35.7%) of US adults were obese as of 2010, as well as approximately 17% of children and adolescents.[1] In 2011, 28.6% of Pennsylvania's population was obese.[2] Obesity is an increasingly prevalent problem that affects the healthcare system as well as patients. In 2006, medical spending was $1,429 greater for an obese person than spending for a healthy-weight person, and the medical cost of obesity was estimated to have risen to $147 billion per year by 2008.[3] Some of the expenditures are related to medical equipment, which can cost as much as $47,808 for an operating room table or $330 for an evacuation sled.[4] Providing clinical care for obese patients in the hospital setting can require extra staff, new policies and procedures, and special equipment.[5]

Not all obese patients require special care and equipment, but class III obese patients have different needs. Class III obese patients are identified as having a body mass index (BMI) greater than or equal to 40 or weighing 100 pounds or more than their ideal body weight.[6] From 2000 to 2005, the prevalence of individuals reporting a BMI greater than 40 increased by 52% and the prevalence of individuals reporting a BMI greater than 50 increased by 75%.[6] Healthcare facilities need to be prepared to provide safe general medical care to class III obese patients whose size surpasses the capacity of present equipment. Some hospitals are addressing these challenges by preparing their facilities to better accommodate these patients.[7] Evaluating patient care needs from admission to discharge for class III obese patients can lead to the development of specific patient care pathways and protocols and the establishment of staffing considerations for delivering safe patient care.[5,8,9]

ANALYSIS OF REPORTS ASSOCIATED WITH MORBID OBESITY

A review of the Pennsylvania Patient Safety Authority's Pennsylvania Patient Safety Reporting System (PA-PSRS) database was conducted to determine the extent of adverse events that class III obese patients experience in Pennsylvania healthcare facilities. With the exception of a few event-specific requests for details about medication errors, PA-PSRS event reports do not capture weight information. To identify this patient population, PA-PSRS event narratives were searched using the words "obese," "morbidly obese," and "bariatric." To capture a representative sample, a five-year time period from January 1, 2007, through December 31, 2011, was selected, and 1,774 adverse event reports that involved class III obese patients were identified. A comparison of the number and percentage of Incidents (i.e., near-miss events) and Serious Events (i.e., events with harm) between PA-PSRS class III obese patient population event reports identified and PA-PSRS general patient population event reports was performed for this five-year time period. An analysis of event reports identified that the Serious Event reports accounted for 24% of the adverse events, whereas in the PA-PSRS general event report population for the same five-year time period, Serious Event reports accounted for less than 4% of the adverse events.[10]

Next, an examination of the event types of the class III obese patient reports compared with the PA-PSRS general population reports revealed a higher-than-expected number of equipment-related reports. This article will address the topics of providing safe general medical care for class III obese patients and the use of bariatric equipment.

Facility-Level Issues

Of the 1,774 adverse event reports, 10% (n =180) were associated with the use of equipment or devices or facility-level limitations when caring for class III obese patients. In

comparison, the PA-PSRS general population equipment-related reports accounted for 0.8% of all adverse event reports in 2011.[10] Only one equipment-related event occurred in an ambulatory surgical facility; the remaining events occurred in hospitals. Seven common issues were identified in the reports: (1) class III obese patient hospital policies and procedures not followed, insufficient, or absent; (2) bariatric equipment availability; (3) bariatric equipment access; (4) bariatric equipment limitations; (5) bariatric equipment failure; (6) inadequate staffing for safe patient transfers or direct patient care; and (7) hospital not completely retrofitted. The following are a few examples of equipment-related event reports.

> *The patient was scheduled for a MRI [magnetic resonance imaging] scan [but the exam was refused] after two attempts because of the size of the patient. The patient was too large and [could] not breathe when in the scanner.*

> *While transferring a bariatric patient from the chair to the bed using the appropriate rental patient transfer mat, one of the canisters supplying air to the mat malfunctioned, causing a loss of air. Once the mat started to lose air, the patient's weight shifted to that side and the patient with the mat fell to the floor between the chair and the bed. The patient was assisted back to bed using the Hoyer lift. The patient complained of pain in his right shoulder and did sustain a small skin tear on their right forearm. The patient did sustain a large hematoma on the right shoulder and left chest area.*

Class III obese patient hospital policy and protocol issues were present in a majority of the event reports (69.4%, n = 125 of 180). These event reports also included issues with the availability and maintenance of bariatric equipment, the selection of regular versus bariatric equipment, the transfer of a patient to another hospital, inadequate staffing for safe patient transfers and care delivery, the use of radiologic equipment, and lack of communication among staff about patient size and needs. Table 1 provides a summary of the event reports.

SURVEY OF THE READINESS OF PENNSYLVANIA HOSPITALS TO ACCOMMODATE CLASS III OBESE PATIENTS

The information uncovered in the event reports analysis raised questions about how prepared Pennsylvania hospitals are to provide general medical care safely to class III obese patients. A 31-question survey was developed based on information obtained from the PA-PSRS event reports analysis, a literature search, and conversations with Pennsylvania hospitals that engage in bariatric surgery. The survey concentrated on facility-level issues, equipment-related issues, and policies and protocols that can affect the delivery of safe care for class III obese patients. For purposes of the survey, class III obese patients were identified as patients who weighed more than 450 pounds. The survey was administered to all hospitals in Pennsylvania in July 2012 and had a 35.3% response rate (n = 85 of 241); 11.9% (n = 8 of 67) of hospitals responding are designated as Bariatric Surgery Centers for Excellence by the American Society for Metabolic and Bariatric Surgery.[11] The number of responses for each question varied because not every respondent answered every survey question. Behavioral health hospitals and children's hospitals did not participate in the study.

The Figure shows the percentage of hospital survey participants.

DEMOGRAPHIC REALITIES VERSUS FACILITY PERCEPTIONS

In the survey, respondents were asked if their hospital limits care of obese patients to the emergency department because of safety concerns. Only 1.6% (n = 1 of 61) of respondents indicated yes, yet 23.5% (n = 12 of 51) of hospital respondents indicated that their emergency department had to transfer a patient to another hospital because of safety concerns related to the patient's weight.

Table 1. Pennsylvania Patient Safety Reporting System Morbidly Obese Patient Event Report Issues (N = 180)

CATEGORY*	NO. OF REPORTS†	% OF REPORTS
Morbidly obese patient hospital policies and procedures not followed, insufficient, or absent	125	69.4
Hospital does not have bariatric equipment	78	43.3
Needed to wait for equipment (lack of access)	51	28.3
Inadequate staffing for safe patient transfers or direct patient care	43	23.9
Bariatric equipment failed	32	17.8
Facility not completely retrofitted	10	5.6
Equipment limitations	5	2.8

* Twenty-nine reports identified the appropriate use of bariatric equipment.

† Event report narratives could have indicated more than one issue.

Respondents were then asked if they have a policy in place for obtaining a baseline height and weight for every patient; 97.0% (n = 64 of 66) of respondents said yes, though only 66.7% (n = 42 of 63) of respondents that own bariatric equipment have bariatric scales. Some of the respondents that indicated that their hospitals own bariatric scales also indicated that they use rental equipment, too. Tables 2 and 3 show breakdowns of the type of bariatric equipment owned and rented, respectively.

The analysts conclude that perceptions about the ability to provide safe patient care for extremely obese patients can differ from actual circumstances.

Knowing the patient population demographics helps hospital leaders make informed decisions about which patients they can safely care for, as well as the types of equipment, building limitations, and staff required to meet the needs of every patient.[12] Conducting a needs assessment by weighing every patient in a sampling cohort upon admission will identify the number and percentage of class III obese patients that frequent a hospital.[13] Weighing every patient upon admission also assists in determining whether a hospital has the capacity (i.e., necessary equipment, space, and personnel available) to provide safe care to this patient population.[13]

Figure. Percentage of Hospital Survey Participants (N = 85)

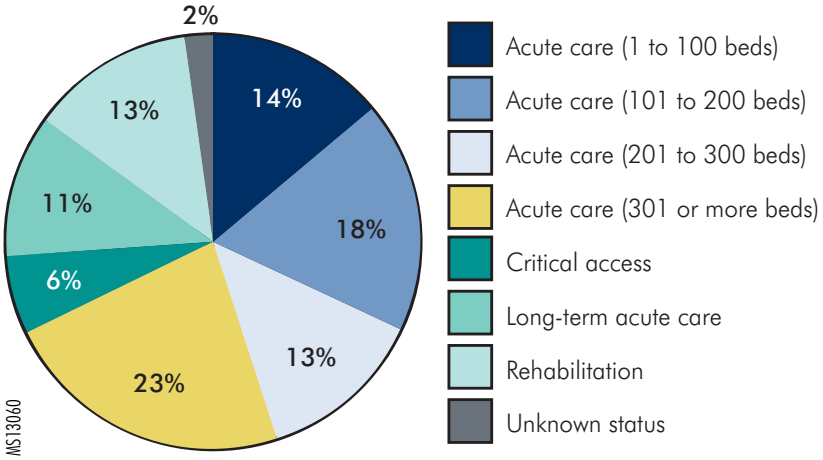

Table 2. Survey Response: Bariatric Equipment Owned by Hospitals (N = 63)

EQUIPMENT	NO. OF FACILITIES	% OF FACILITIES
Wheelchairs	59	93.7
Blood pressure cuffs	58	92.6
Scales	42	66.7
Beds	41	65.1
Stretchers	38	60.3
Lifts (including Hoyer, sit-to-stand, air bag system, portable, or ceiling-mounted lifts)	11	17.5
Bedside commodes	7	11.1
Chairs	3	4.8
Operating room tables	2	3.2
Hover mats	2	3.2
Bedside furniture	1	1.6
Procedure tables	1	1.6
Walkers	1	1.6
Shower chairs	1	1.6

CHALLENGES ASSOCIATED WITH CLASS III OBESE PATIENTS

Before addressing specific patient needs, a discussion about how much respect class III obese patients receive is essential, as this can impact their seeking care and reporting health concerns.[9] Weight stigma and discrimination is pervasive and not limited to healthcare settings.[14,15] The stigmatization of obese patients exists and has been shown to negatively impact their care.[16] Sensitization to the plight of all obese patients, not just class III obese patients, is essential to understanding their circumstances and needs and can help in addressing their healthcare issues sooner.

In the Authority survey, slightly less than half of respondents (47.1%, n = 33 of 70) stated that their hospital provides different types of staff education programs regarding the care of obese patients. The majority of respondents (69.7%, n = 23 of 33) whose hospitals have training programs in place provide sensitivity training. Nonjudgmental attitudes and addressing privacy concerns toward class III obese patients are essential to providing safe patient care. For example, healthy-weight patients do not want outsiders knowing what their weight

Table 3. Survey Response: Bariatric Equipment Rented by Hospitals (N = 72)

EQUIPMENT	NO. OF FACILITIES	% OF FACILITIES
Beds	56	77.7
Wheelchairs	16	22.2
Lifts	6	8.3
Scales	5	6.9
Stretchers	4	5.5
Bedside commodes	4	5.5
Shower chairs	3	4.2
Unspecified (e.g., rent equipment when need exceeds equipment owned by facility, dependent on patient needs)	3	4.2
Bariatric recliners	1	1.4
Chairs	1	1.4
Hover mats	1	1.4
Specialty bariatric beds	1	1.4
Walkers	1	1.4

Table 4. ECRI Institute SELECTPlus Average Prices for Bariatric Equipment, 2011

EQUIPMENT TYPE	PRICE PER ITEM
Operating room tables	$47,808
Beds	$18,555
Treadmills	$9,828
Laparoscopes	$8,857
Ceiling lifts	$7,743
Mobile lifts	$7,065
Wheelchair mover*	$6,895
Stretchers	$6,550
Cadaver cart	$5,715
Commode (600-pound weight capacity)	$5,220
Stretcher ramp (for ambulance)	$4,600
Exam tables and chairs	$4,589
Patient scales	$2,406
Patient seating/recliners	$2,154
Wheelchairs	$1,571
Traction frames (overbed trapeze)	$992
Shower chair	$771
Evacuation sled	$330
Adult thigh blood pressure cuffs†	$16.47
Adult large blood pressure cuffs†	$15.64

* Motor attached to the back of a wheelchair
† Prices from ECRI Institute PriceGuide 2012

is, just like a class III obese patient would not want that information disseminated. Obtaining sensitive information such as the patient's weight in a dignified, respectful, nonjudgmental manner is vital to securing the proper information and the appropriate type of equipment.[17,18]

EQUIPMENT DECISIONS

A study by Drake et al. (2008) revealed that the most significant barrier for nurses to providing "excellent" patient care to class III obese patients was special equipment needs.[19] Owning and renting bariatric equipment are not mutually exclusive. Some of the respondents indicated that their hospital does both. Fewer respondents acknowledge owning bariatric equipment (n = 63) compared with the number who rent (n = 72). A major consideration with renting bariatric equipment is the time needed to secure bariatric rental equipment. The majority of survey respondents (75%, n = 45 of 60) said that it takes one to six hours to receive rented bariatric equipment. Another 11.7% (n = 7) indicated that it takes more than six hours to receive rented equipment, and 8.3% (n = 5) of respondents indicated that it takes more than 12 hours. Time to receive specialized equipment can impact the care class III obese patients receive and the staff caring for them. Knowing the costs associated with owning versus renting bariatric equipment helps inform decisions about whether to purchase or rent equipment. Table 4 provides prices for a variety of bariatric equipment.

Equipment for Vital Signs

Obtaining accurate vital signs is basic and essential to excellent, high-quality patient care. Medications, activity orders, diet, and other aspects of treatment rely heavily on accurate vital signs, including blood pressure measurement. If a blood pressure cuff is too small for a patient, an inaccurate reading will result.[20] In the survey, 92.1% (n = 58 of 63) of respondents

reported owning bariatric blood pressure cuffs. When asked if every location in the hospital where blood pressure is measured has cuffs of all size for obese patients, 73.6% (n = 53 of 72) of respondents said yes, and 74.7% (n = 56 of 75) of respondents reported that their nurses were trained to properly obtain blood pressures in obese patients of different sizes. See "Blood Pressure Cuff Sizes" for suggested sizes based on arm circumference.[20]

BLOOD PRESSURE CUFF SIZES

Arm circumference 22 to 26 cm—the cuff should be "small adult" size: 12 x 22 cm

Arm circumference 27 to 34 cm—the cuff should be "adult" size: 16 x 30 cm

Arm circumference 35 to 44 cm—the cuff should be "large adult" size: 16 x 36 cm

Arm circumference 45 to 52 cm—the cuff should be "adult thigh" size: 16 x 42 cm

Source: Pickering TG, Hall JE, Appel LJ, et al. Recommendations for blood pressure measurement in humans and experimental animals. Part 1: blood pressure measurement in humans: a statement for professionals from the subcommittee of professional and public education of the American Heart Association council on high blood pressure research. *Circulation* 2005 Feb 8; 111(5):697-716.

Lift Equipment

Lifts and transfer devices are necessary to prevent the friction and shear that occurs when repositioning a patient to prevent pressure ulcer development, to help move patients who have limited mobility to prevent falls, and to protect the staff members assisting the patient. Out of 63 respondents who own equipment, 15.9% (n = 10) reported owning lifts, and 10.0% (n = 1 of 10) of respondents who own lifts also rent them. Only 8.3% (n = 6 of 72) of respondents who rent equipment rent lifts. Without mechanical lifts, multiple staff members are often recruited to assist in moving obese patients. This situation puts both the patient and staff members at risk for injury, as illustrated in the following event report:

> *Patient given [diuretic] and did not use [bedside commode but] went to the bathroom instead. [The patient] voided on the floor and slipped in urine. [The patient was] unable to get up because [the patient was] obese. Security was called, and several guards assisted [the patient] from the floor to the chair, and then to the bed.*

The National Institute for Occupational Safety and Health's recommendation is that an assistive device should be used if a care provider needs to lift more than 35 pounds of another individual's body weight.[21] One leg of a 350-pound patient can weigh as much as 62 pounds.[22] This is an important point to consider when thinking about completing a dressing change, repositioning, or assisting a patient back to bed. Staff safety also needs consideration. Staff injuries* can create staffing shortages, which can compromise patient safety.[23]

Daily-Use Equipment

Larger-size equipment such as bariatric bedside commodes, wheelchairs, and beds are essential for daily use by class III obese patients. Even in hospitals that own bariatric equipment, renting additional equipment for daily use may be necessary if demand increases. More survey respondents own bedside commodes and wheelchairs than rent this type of equipment; only 9.5% (n = 6 of 63) of respondents own bedside commodes and 5.6% (n = 4 of 72) rent them, while 93.7% (n = 59 of 63) of respondents own bariatric wheelchairs and 22.2% (n = 16 of 72) rent them. The opposite trend was found with bariatric beds; 65.1% (n = 41 of 63) of survey respondents own bariatric beds, while 77.8% (n = 56 of 72) rent them.

In-Service Training

The availability of specialized bariatric equipment when caring for class III obese patients is only as good as how well staff know how to access and use it appropriately, including knowing the equipment weight capacities and how to obtain the equipment. The survey results showed that 65.5% (n = 36 of 55) of respondents mark their equipment with the weight capacity, 63.6% (n = 35 of 55) said equipment manuals are available to identify weight capacity, 21.8% (n = 12 of 55) said the weight capacity is not identified, and 20.0% (n = 11 of 55) replied in the "other" category. Some of the methods in the other category included posting lists, making information available on the system-wide intranet and log books, making information available in departmental policies and procedures, and developing systematic plans to label all equipment using symbols to identify weight limits. Creating a systematic plan using symbols or other indicators (e.g., colored tape) rather than printing weight limits directly on equipment to identify weight capacities on bariatric equipment provides a way to inform staff of the weight restrictions of the equipment while maintaining patient dignity. Hospitals have established multiple approaches to identifying weight capacities; however, 3.6% (n = 2 of 55) of respondents did not know if their staff were knowledgeable about the weight capacity of available equipment. Development of policies and procedures for education and training of all staff is necessary to ensure the appropriate acquisition and use of bariatric equipment.

* The average direct cost of a back injury in healthcare is $37,000, and indirect costs can range from $147,000 to $300,000.[22] The one-time expense of a lift ranges from $7,000 to $7,700.[4]

STRUCTURAL CONSIDERATIONS

Class III obese patients require larger spaces and equipment that supports weight loads two to three times as heavy as the weight loads of equipment for healthy-weight patients. Structural considerations for using bariatric equipment include not only patient amenities but cumulative patient weight load, patient transport, and emergency evacuation considerations.

Older hospital buildings need to take into account the cumulative load. The increase in the number of class III obese patients has resulted in some hospitals choosing to make structural changes to buildings to accommodate these patients. Hospital bariatric care unit building guideline specifications address issues such as the size of the room, shower stall, doorway, and waiting areas.[24] These guidelines also address issues of toilet placement (i.e., toilets need to be floor-mounted, with a specific amount of distance from the wall in order to allow the patient room to sit comfortably and to accommodate a wheelchair).[24] Another structural issue that hospitals need to consider is the building's floor capacity and whether the floors can support these heavier cumulative weight loads when there are multiple class III obese patients on the same floor. When respondents were asked if their hospital has an elevator that can accommodate the obese patient, the equipment used in their care, and the staff, 78.9% (n = 60 of 76) of respondents said yes, 17.1% (n = 13) said no, and 3.9% (n = 3) did not know.

While many hospitals may not be in a financial position to make structural changes, there are some actions that can be adopted in the hospital that would have an immediate effect in ensuring safe care for class III obese patients. For example, deciding where these patients should be admitted affects the day-to-day care of the patient. Utilizing strategically placed nursing units such as those near the ground level or those near radiological departments may ease transports for testing and admission and discharge.

Some units may also have larger hallways and patient rooms that may be more appropriate for the patient and their needed equipment. The PA-PSRS event reports analysis revealed that hospitals do not always check that the bariatric equipment will fit the existing facility structure and allow enough room for safe patient care; that the bariatric bed and other equipment fit safely through the door to the patient room; and that there is enough space for the patient, the equipment, and the staff. Protecting not only the class III obese patient but also all the patients and staff can be done with good planning and little cost using these action steps. The following is an event report that illustrates the need to address hospital building constraints:

> *A rapid response team [was] called on a patient. The patient was in a bariatric bed, which, upon attempting to transfer the patient to the ICU [intensive care unit], would not fit [through] the door. All expandable parts of the bed were returned to their normal position (not expanded) and all siderails were lowered in order to attempt to fit the bed out of the room, thus compromising patient safety. The bed repeatedly got stuck in the doorframe and was only able to be dislodged with extreme force by multiple personnel. When the bed was finally dislodged, it was noted that there was damage to the doorframe and the metal strip on the door.*

Most important when considering the hospital's structure is an evacuation plan. Patient safety is the top priority in healthcare. It is imperative to address class III obese patients in emergency evacuation plans. More than one-third (36.5%, n = 23 of 63) of the respondents did not have an evacuation plan in place for moving class III obese patients to a safe location in the event of an emergency. Class III obese patients who have severe mobility issues will depend on staff to help them in the event of an evacuation. For example, as one paper noted, "During Hurricane Katrina, 12 staff members at a New Orleans area hospital took nearly two hours to carry a single obese patient down an emergency stairwell. As a result, many staff members were unable to assist with other aspects of the hurricane evacuation."[25] More recently, there was the evacuation of hundreds of patients from New York University's Bellevue Hospital Center during Hurricane Sandy, as well as some of the city's surrounding hospitals prior to Hurricane Sandy. The chief executive of Maimonides Medical Center in Brooklyn, Pamela Brier, told the *New York Times*, "As prepared as we think we are we've never had a mock disaster drill where we carried patients downstairs. I'm shocked that we didn't do that. Now we're going to."[26]

Being in the midst of a disaster is not the time to figure out how to safely and effectively evacuate patients. Class III obese patients with BMIs greater than 60 might benefit most if admitted, when possible, to units that are easily accessible to exits without having to travel down elevators or stairs. In addition to the physical location of these patients, having the appropriate equipment available to move these patients will help staff evacuate them safely and efficiently. Developing a thorough evacuation plan and having the appropriate resources will make evacuation safer and more efficient, thus protecting the safety of all the patients.

ADDRESSING CLASS III OBESE PATIENT EQUIPMENT NEEDS

Providing safe care for class III obese patients can be accomplished whether or not bariatric equipment is purchased.

The following strategies address equipment-related issues for class III obese patients:

- Provide sensitivity training to all healthcare staff.[13,22,27,28]
- Assess whether the hospital has policies addressing the needs of obese

patients (e.g., lifting policies, rental equipment policies).[12,13,22]

- Weigh every patient upon admission to the hospital, including patients in the emergency room.[13,27,29]
- Measure every patient's height upon admission to calculate their BMI, including patients in the emergency room.[13,27,29]
- Measure patients' abdominal girth to determine equipment of the appropriate size.[13,27,29]
- Assess patients' mobility needs to determine if special equipment is required.[22]
- Trend the hospital's obese patient population to help determine the level of demand and develop a business case for purchasing equipment.[22,27]
- Evaluate the average daily census of obese patients compared with the bariatric equipment.[22,27]
- Take inventory of bariatric equipment, noting weight capacities.[13,27]
- Evaluate the type and number of equipment owned.[13,27,28]
- Consider a phased-in approach to equipment acquisition.[27]
- If considering purchasing equipment, evaluate storage capacity and a system to track the equipment.[27]
- Develop and make accessible to staff a system to identify the weight capacity of the equipment.[12,27]
- Evaluate the availability of smaller bariatric-related equipment (e.g., blood pressure cuffs, longer tourniquets, larger gowns, longer wrist identification bands, longer needles, extra-long tracheostomy tubes for the emergency room).[13,22,27]
- Evaluate elevator size and weight capacity.[22,27,28]
- Evaluate floor weight capacity and doorway and hall size.[12,22,27]
- Develop and test an evacuation plan.[12,28]
- If emergency transport vehicles are owned by a hospital, evaluate whether class III obese patients can be accommodated safely.[27]
- Ensure that staff know who to contact when equipment (owned or rented) will be needed or require repair.[22]
- Evaluate staffing needs based on the number of class III obese patients on a unit.[13,22]
- Educate staff on the proper use of equipment.[22]

LIMITATIONS

The 180 PA-PSRS event reports identified for this analysis related to class III obese patients underrepresent the actual number of class III obese patients who experienced adverse events during hospitalization. Identification of class III obese patients in PA-PSRS was accomplished through a search of the PA-PSRS event report narrative descriptions, which rely on the subjective assessments provided by the individuals filling out the event reports rather than the identification of patients by their weight or BMI. Limitations associated with the statewide survey include (1) a potential response bias toward hospitals that care for class III obese patients, (2) a potential nonresponse bias due to an underestimation of the number of and issues associated with class III obese patients, and (3) a low response rate potentially resulting from the time the survey was administered.

CONCLUSION

As the prevalence of class III obese patients increases, the issue of delivering safe care will impact many more hospitals than those identified in the statewide survey. This article identified some of the problems that class III obese patients encounter when different types of equipment (bariatric and nonbariatric) are unavailable, malfunction, or are improperly used or when hospital policies and procedures are not followed, insufficient, or absent. This article also provides a wide range of solutions that all hospitals can institute. If priorities were assigned to the strategies, the strategies at the top of the list would be sensitivity training; measuring height, weight, and abdominal girth of all patients; and developing an evacuation plan for class III obese patients.

Acknowledgment

Ramsey Dallal, MD, FACS, assistant professor of surgery, Jefferson Healthcare, and vice chair of surgery, Einstein Healthcare Network, contributed to the development of the survey for this article.

NOTES

1. Ogden CL, Carrol MD, Kit BK, et al. Prevalence of obesity in the United States, 2009-2010 [National Center for Health Statistics Data Brief online]. No. 82. Jan 2012 [cited 2013 Jan 8]. http://www.cdc.gov/nchs/data/databriefs/db82.pdf.
2. Centers for Disease Control and Prevention. Overweight and obesity: adult obesity facts [online]. 2012 [cited 2013 Jan 31]. http://www.cdc.gov/obesity/data/adult.html.
3. Finkelstein EA, Trogdon JG, Cohen JW, et al. Annual medical spending attributable to obesity: payer- and service-specific estimates. *Health Aff (Millwood)* 2009 Sep-Oct:28(5):w822-31.
4. ECRI Institute. SELECTPlus bariatric equipment cost request. E-mail to: Lea Anne Gardner. 2011 Oct 19.
5. Ashford and St. Peter's Hospitals NHS Trust. Bariatric patient policy [online]. 2009 Jul [cited 2013 Jan 31]. http://www.ashfordstpeters.nhs.uk/attachments/1205_Bariatric%20Patient%20Policy.pdf.
6. Sturm R. Increases in morbid obesity in the USA: 2000-2005. *Public Health* 2007 Jul;121(7):492-6.
7. New beds for Mercy Hospital [television transcript online]. WNEP 16 News 2010 Sep 16 [cited 2011 Oct 12; link no longer available].

8. Dartfod and Gravesham NHS Trust. Guidelines for the care of bariatric patients [online]. 2006 Jun [cited2012 Nov 8]. http://www.safeliftingportal.com/hottopics/documents/0RAPY8V7X0_Guidelines_on_the_Care_of_Bariatric_Patients.pdf.
9. Kundravi RM. Meeting the challenges associated with morbidly obese patients. Pa Patient Saf Advis [online] Dec 2010 [cited 2013 Jan 31]. http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2010/dec7(4)/Pages/155.aspx.
10. Pennsylvania Patient Safety Authority. 2011 annual report [online]. 2012 Apr 30 [cited 2013 Jan 25]. http://patientsafetyauthority.org/PatientSafetyAuthority/Documents/FINAL%202011%20Annual%20Report.pdf.
11. American Society for Metabolic and Bariatric Surgery. MBSAQIP update: a report on the transition to the new ASMBS-ACS quality program: the Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program (MBSAQIP) [online]. [cited 2013 Jan 3]. http://asmbs.org/2012/08/mbsaqip-update.
12. McGinley LD, Bunke J. Best practices for safe handling of the morbidly obese patient. *Bariatric Nurs Surg Patient Care* 2008 Dec;3(4):255-60.
13. Arzouman J, Lacovara JE, Blackett A, et al. Developing a comprehensive bariatric protocol: a template for improving patient care. *Medsurg Nurs* 2006 Feb;15(1):21-6.
14. Puhl RM, Heuer CA. Obesity stigma: important considerations for public health. *Am J Pub Health*. Jun 2010; 100(6):1019-28.
15. Puhl RM, Heuer CA. The stigma of obesity: a review and update [online]. Obesity 2009 [cited 2012 Nov 7]. http://yaleruddcenter.org/resources/upload/docs/what/bias/WeightBiasStudy.pdf.
16. Puhl RM, Brownell KD. Bias, discrimination, and obesity. *Obes Res* 2001 Dec;9(12):788-805.
17. Thomas SA, Lee-Fong M. Maintaining dignity of patients with morbid obesity in the hospital setting [online]. Bariatric Times 2010 Apr 15 [cited 2012 Nov 9]. http://bariatrictimes.com/maintaining-dignity-of-patients-with-morbid-obesity-in-the-hospital-setting.
18. Bejciy-Spring SM. R-E-S-P-E-C-T: a model for the sensitive treatment of the bariatric patient. *Bariatric Nurs Surg Patient Care* 2008;3(1):47-56.
19. Drake DJ, Baker G, Engelke MK, et al. Challenges in caring for the morbidly obese: differences by practice setting [online]. South Online J Nurs Res 2008 Aug [cited 2012 Nov 8]. http://www.resourcenter.net/images/SNRS/Files/SOJNR_articles2/Vol08Num03Art08.html.
20. Pickering TG, Hall JE, Appel LJ, et al. Recommendations for blood pressure measurement in humans and experimental animals. Part 1: blood pressure measurement in humans: a statement for professionals from the subcommittee of professional and public education of the American Heart Association council on high blood pressure research. *Circulation* 2005 Feb 8;111(5):697-716. Also available at http://m.circ.ahajournals.org/content/111/5/697.long.
21. Collins JW. Safe patient handling and lifting standards for a safer American workforce [online]. Testimony before the Committee on Health, Education, Labor, and Pensions Subcommittee on Employment and Workplace Safety United States Senate. 2010 May 11 [cited 2013 Jan 31]. http://www.cdc.gov/washington/testimony/2010/t20100511.htm.
22. Muir M, Archer-Heese G. Essentials of a bariatric patient handling program [online]. Online J Issues Nurs 2009 Jan [cited 2013 Jan 25]. www.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/Vol142009/No1Jan09/Bariatric-Patient-Handling-Program-.aspx.
23. Saracino S, Schwartz S, Pilch E. Implementing a safe patient handling and movement program in a rehabilitation setting. Pa Patient Saf Advis [online] 2009 Dec [cited 2013 Jan 31]. http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2009/Dec6(4)/Pages/126.aspx.
24. Facilities Guidelines Institute. *Guidelines for design and construction of health care facilities*. 2010 ed. Chicago: American Society for Healthcare Engineering: 2010.
25. Gillings J. Special needs population: emergency management of bariatric patients [online]. 2010 Jul [cited 2013 Jan 31]. http://www.naccho.org/topics/emergency/AHPIP/loader.cfm?csModule=security/getfile&pageid=150910.
26. Hartocollis A, Bernstein. At Bellevue, a desperate fight to ensure the patients' safety [online]. NY Times 2012 Nov 1 [2012 Nov 8]. http://www.nytimes.com/2012/11/02/nyregion/at-bellevue-a-desperate-fight-to-ensure-the-patients-safety.html?pagewanted=all.
27. ECRI Institute. *Bariatric services: safety, quality, and technology guide*. Plymouth Meeting (PA): ECRI Institute; 2004.
28. ECRI Institute. Safety of extremely obese residents and their caregivers. *Contin Care Risk Manage* 2005 Nov;1:Patient/resident care 8:1-19.
29. Wright K, Bauer C. Meeting bariatric patient care needs: procedures and protocol development. *J Wound Ostomy Continence Nurs* 2005 Nov-Dec;32(6):402-6.

PENNSYLVANIA PATIENT SAFETY ADVISORY

This publication is disseminated via e-mail. To subscribe, go to http://visitor.constantcontact.com/d.jsp?m=1103390819542&p=oi.

To see other articles or issues of the Advisory, visit our website at http://www.patientsafetyauthority.org. Click on "Patient Safety Advisories" in the left-hand menu bar.

THE PENNSYLVANIA PATIENT SAFETY AUTHORITY AND ITS CONTRACTORS

PATIENT SAFETY AUTHORITY
An Independent Agency of the Commonwealth of Pennsylvania

The Pennsylvania Patient Safety Authority is an independent state agency created by Act 13 of 2002, the Medical Care Availability and Reduction of Error (Mcare) Act. Consistent with Act 13, ECRI Institute, as contractor for the Authority, is issuing this publication to advise medical facilities of immediate changes that can be instituted to reduce Serious Events and Incidents. For more information about the Pennsylvania Patient Safety Authority, see the Authority's website at http://www.patientsafetyauthority.org.

ECRI Institute
The Discipline of Science. The Integrity of Independence.

ECRI Institute, a nonprofit organization, dedicates itself to bringing the discipline of applied scientific research in healthcare to uncover the best approaches to improving patient care. As pioneers in this science for more than 40 years, ECRI Institute marries experience and independence with the objectivity of evidence-based research. More than 5,000 healthcare organizations worldwide rely on ECRI Institute's expertise in patient safety improvement, risk and quality management, and healthcare processes, devices, procedures and drug technology.

ISMP
INSTITUTE FOR SAFE MEDICATION PRACTICES

The Institute for Safe Medication Practices (ISMP) is an independent, nonprofit organization dedicated solely to medication error prevention and safe medication use. ISMP provides recommendations for the safe use of medications to the healthcare community including healthcare professionals, government agencies, accrediting organizations, and consumers. ISMP's efforts are built on a nonpunitive approach and systems-based solutions.

Scan this code with your mobile device's QR reader to subscribe to receive the Advisory *for free.*