

XTRAwise™

a publication for the medical community

YOUR ICU AND THE BARIATRIC PATIENT

EARLY MOBILITY OF THE BARIATRIC PATIENT IN THE ICU

Obesity in the United States has become a pandemic. The latest statistics from the Center for Disease Control (CDC) reflect that more than one third of the US population is obese, and a recent study in *Journal of the American Medical Association* reported that now more Americans are obese than overweight.

As we relate these statistics—and the consequent increasingly high rate of critically ill obese patients in hospitals—to our current healthcare system, a key angle to consider is the unique set of challenges associated with this growing patient population. One critical patient care factor that is becoming an increasing challenge due to this growing rate of critically obese patients in hospitals is early mobilization of the bariatric patient. Mobilizing bariatric patients requires varied approaches and equipment, as well as safe patient handling protocols designed to keep both the patient and the caregiver/staff safe.

Preparation is vital in providing safe medical care to such patients whose needs may not fully be addressed by a hospital's standard equipment and treatment protocols. In addition, nurses acknowledge it can be challenging to care for the obese patient on many levels. This may include personal bias, a lack of equipment, and a lack of training and education.⁽¹⁾ Being able to provide the best hospital experience for the bariatric population requires specific protocol development and updating of equipment to address these safe patient care and caregiver injury considerations.

The intensive care unit (ICU) experience for bariatric patients is particularly challenging and complex. The increasing population of critically ill obese patients in the healthcare system requires an evolving awareness on the part of hospital personnel to adjust and accommodate bariatric patients. The National Institutes of Health (NIH) reports that an increase of 20 percent or more above desirable body weight can constitute a health hazard.⁽²⁾ A study by Akinnusi confirms that obesity in critically ill patients significantly correlates to prolonged duration of mechanical ventilation and increased length of stay (LOS).⁽³⁾

Decreasing LOS is a current focus in all units of the hospital, including the ICU. There is a correlation between decreased LOS and improved patient outcomes.⁽⁴⁾ The additional benefit to the hospital is a significant one — cost-effectiveness.

One medical intervention proven to decrease LOS in the ICU is the implementation of early patient mobility. However, progressive mobility of bariatric patients in the ICU cannot be considered without first reviewing the unique healthcare challenges of this patient population.

THE BARIATRIC PATIENT'S NEEDS

Bariatric patients are usually admitted to an ICU for one of three reasons: 1) they may have had a routine bariatric or other surgery and have complications, or their postoperative comorbidities necessitate ICU monitoring;

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COMMON CHALLENGES IN TREATING MORBIDLY OBESE PATIENTS¹⁵

- Airway management
- Pulmonary management
- Perioperative management
- Vascular access
- Prophylaxis of deep vein thrombosis (DVT)
- Pharmacology considerations
- Radiographic procedures & intra-hospital transfers
- Nutritional requirements
- Nursing care
- Skin integrity maintenance
- Maintaining patient dignity

BARIATRIC CHECKLIST, EQUIPMENT, AND PATIENT COMFORT ITEMS

Bariatric bed with width to accommodate turning and power drive

- Clinically effective low air loss to manage microclimate
- Air transfer device for use between bed and stretcher, imaging table
- Powered lift mechanism
- Sheet-based patient transport device – one-button transport to move patient up in bed
- Commode; floor mounted or over-the-toilet rental
- Shower commode chair with drop arms for ease of bathing
- Stand assist aids/walker
- Transfer/Geri Chairs
- Wheelchair
- Panniculus support device
- Extremity support
- Blood pressure cuff; extra-large or thigh cuff
- Patient gown; appropriate size
- Extra support devices; pillow wedges

*Know weight capacity of all equipment



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2) problems with a chronic illness requiring ICU monitoring; 3) involvement in a trauma requiring admission to an ICU.

Bariatric ICU patients exhibit a myriad of medical and physical challenges. (Please see *Common Challenges in Treating Morbidly Obese Patients* at left.) The extra weight and adipose tissue exacerbate their admitting diagnosis and have the potential to affect other existing comorbidities. Physiologically, the obese patient's increased size and excess adipose tissue interfere with many bodily functions.⁽⁵⁾ For example, the extra adipose tissue in the chest wall and airway compromises respiratory efforts. It has also been determined that adipose tissue has increased blood flow requirements, which in turn increases cardiac workload.⁽⁶⁾ As a chronic inflammatory state, obesity diminishes both immune and metabolic reserves. Increased BMI requires increased cardiovascular, respiratory, and metabolic effort, resulting in a markedly diminished physiologic reserve (stamina).⁽⁷⁾ Other medical concerns for these patients include thromboembolic issues, nutrition and unique skin challenges, psychosocial concerns, and pharmacology adjustments. In addition, there are the added clinical challenges of obtaining and maintaining intravascular access and intubation. For these reasons, early rehabilitation of these at-risk patients must be made a priority.

Patients in the ICU benefit from early mobility protocols, and numerous studies support this fact. A study by Morris and Goad compared two groups of ICU patients, all with respiratory failure as part of their diagnosis. 165 patients participated in an early mobility protocol. The remaining 165 received the usual care. The study outcomes revealed that the introduction of early mobility was "feasible, safe, and did not increase cost." Additional patient outcomes showed decreased ICU and hospital length of stay (LOS) for those patients engaged in early mobility.⁽⁹⁾ An additional study by Needham and colleagues followed 222 patients after their discharge from ICU. Outcomes of this study showed that for every day a patient in ICU was on bedrest, muscle strength was 3 to 11% lower over the following months and years. Also significant was the fact that "the two variables most associated with a patient's weakness were age and the duration of bedrest in the ICU." Needham emphasized that ICU patients should be kept as active as possible, even if they are only able to sit on the edge of the bed or have passive range of motion (ROM) by a therapist.⁽¹¹⁾

Early mobility is a term best used to describe mobilizing activities that begin immediately upon stabilization of hemodynamic and respiratory physiology, which frequently occurs 24 to 48 hours after ICU admission.^(8,10) The determination of whether a patient qualifies for early mobility in the ICU must be made by the multidisciplinary team. Usually a specific set of criteria is reviewed before making that decision. (See Insert, Table 1.)

In 2010, a quality improvement project was initiated at Johns Hopkins Hospital to address the issue of sedation, delirium, and the lack of consistent physical therapy (PT), specifically for those patients requiring mechanical ventilation greater than 4 days. The project found that reducing sedation enabled more patients to participate in early rehabilitation therapy, which markedly decreased LOS.⁽¹¹⁾

Input from physicians, nurses, respiratory and PT, and pharmacists are all necessary to accomplish these positive outcomes. Clinical coordination is vital to developing an early mobilization protocol for all ICU patients, including the bariatric population. Mobilizing a mechanically ventilated patient for example, requires collaboration and coordination among multiple health care members. Often a respiratory therapist, a physical therapist, and nursing staff are involved in assisting one patient in his/her activity.^(12,13) Planning the actual mobility session requires clear communication in order to schedule around the patient's schedule, stamina or tolerance for activity, and the tests or procedures being performed throughout the unit.

Delaying mobility for critically ill patients has been shown to adversely affect outcomes.⁽¹²⁾ A multitude of complications have been attributed to immobility, many of which extend LOS and increase hospital costs. Some critical care patients experience "functional decline" from their stay in ICU. Acute symptoms of this decline show patients from the ICU falling 3 times as often during their hospitalization. Patients from the ICU who are on mechanical ventilation (MV) for more than 5 days result in extended MV and increased LOS. Long-term problems (3.3 years later) showed that 70% of the patients studied considered themselves less active than pre-injury, and only 49% had returned to work.^(13,14) (See Table 2.)

So what are the barriers to early mobility in the ICU? Dr. Heidi Engel at University of California San Francisco Medical Center spearheaded a very successful early mobility program and published the results.⁽¹⁴⁾ Please see *Possible Barriers to Mobilizing Patients in the ICU* at right for a list of initial barriers Dr. Engel found in her facility.

Undoubtedly, similar barriers such as these are present in many facilities. As we begin to see the shift in ICU culture toward mobilizing patients, and as protocols and screening are being performed to determine which ICU patients are capable of early mobility, this is the time to adapt these protocols to accommodate bariatric patients.

The key elements to include bariatric patients in early mobility are to again recognize and consider the unique medical challenges bariatric patients introduce, and also to incorporate the necessary equipment to mobilize and safely care for these patients. Education for staff on equipment use, including awareness of weight capacity restrictions, is essential. A checklist of bariatric equipment needs can prove helpful in preparing the patient room and environment. (See *Bariatric Checklist, Equipment, and Patient Comfort Items*, Page 2.)

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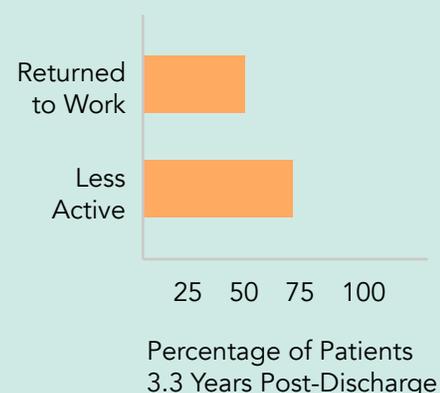
POSSIBLE BARRIERS TO MOBILIZING PATIENTS IN THE ICU

(Adapted from Engel H. ICU Early Mobilization at UCSF. 2010 Available at: <http://ptrehab.ucsf.edu/sites/ptrehab.ucsf.edu/files/documents/Early%20Mobilization%20in%20the%20ICU.pdf>).¹⁴

SOUNDS LIKE A GOOD IDEA BUT:

- I cannot add staff at this time
- It's too much work
- It's not safe
- The evidence is not conclusive enough
- Verbal support without concrete follow-up
- Skeptical managers and clinicians
- Practice patterns, protocols, communication, and documentation systems must be changed
- Endless meetings and no start date

TABLE 2:



CONCLUSION

Mobilizing bariatric patients in the ICU requires planning and knowledge of the technology designed specifically to care for these patients. Goals must remain patient-focused. It is imperative that there be buy-in and feedback from clinicians, patients, and leadership involved in the process. It is also important to emphasize that mobility can be a gradual process and must be patient-specific. Once medical stability has been established, the progression of mobility may begin.

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Karen Egli, Clinical Liaison for Sizewise, is a certified wound care nurse. As a graduate from Goshen College in Goshen, Ind., Karen received her Bachelor of Arts in education and continued at Hesston College in Hesston, Kan., to receive her degree in nursing.

Later this year, Karen will continue to expand her expertise by taking the wound and ostomy exams to become a certified wound and ostomy nurse (CWON).

For the last 25 years, Karen has worked in hospitals throughout Colorado, specializing in the hands-on care of patients and educating the nursing staff. Most recently she was the registered nurse for the outpatient wound care center at St. Anthony North Hospital in Westminster, Colo. While working in the outpatient setting, Karen became well-versed in the total care management regarding wounds, especially in conjunction with the homecare setting.

Prior to Karen's time at St. Anthony North Hospital, she worked as the total joint program coordinator at OrthoColorado Hospital in Lakewood, Colo., where she successfully developed the orthopedic program. She also educated patients before undergoing orthopedic surgery, outlining expectations concerning patient's spines and joints. Outside of patient care, Karen provided one-on-one education on patient mobility to the nursing staff.

Currently, Karen is an active member of the National Association of Orthopaedic Nurses (NAON) and the Wound, Ostomy and Continence Nurses Society (WOCN).

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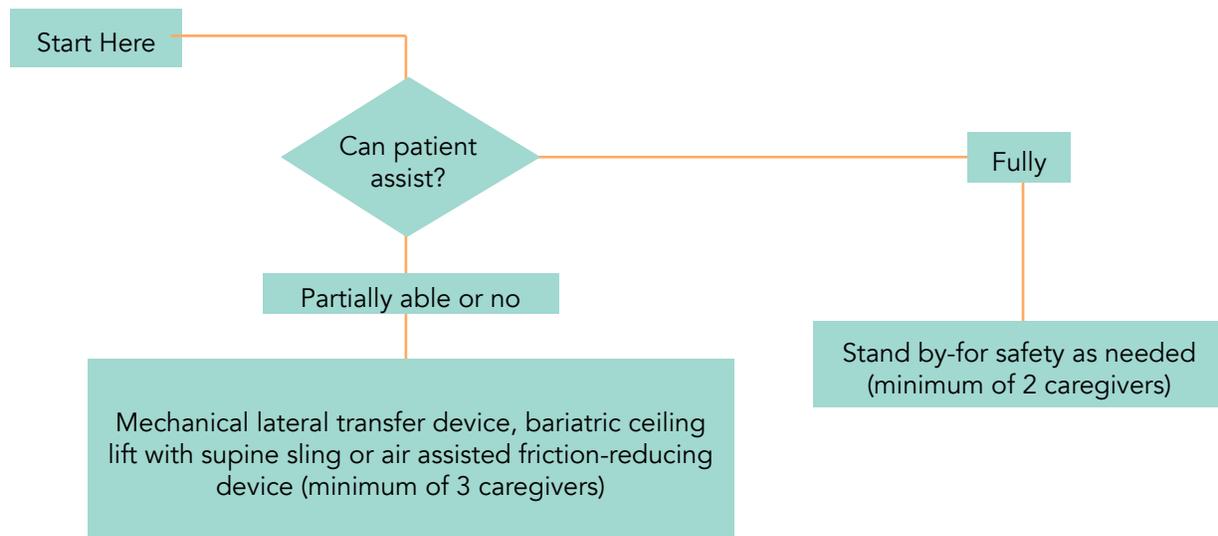
EXAMPLE INCLUSION AND EXCLUSION CRITERIA FOR MOBILIZING ICU PATIENTS

(Adapted from Engel H. ICU Early Mobilization at UCSF. 2010 Available at: <http://ptrehab.ucsf.edu/sites/ptrehab.ucsf.edu/files/documents/Early%20Mobilization%20in%20the%20ICU.pdf>.)¹⁴

| INCLUSION GUIDELINES | EXCLUSION GUIDELINES |
|--|--|
| Patient is able to be aroused by voice and requires skilled physical therapy intervention | Patients with immediate plans to transfer to outside hospital |
| Physical therapy (PT) referral written by medical doctor (MD) or nurse practitioner (NP) | Patients who require significant doses of vasopressors for hemodynamic stability (maintain MAP > 60) |
| PT and NP will informally round on the ICU patient census daily to select appropriate patients for new PT referrals | Mechanically ventilated patients who require FiO ₂ .8 and/or PEEP >12, or have acutely worsening respiratory failure |
| Functionally independent patients mobilize and ambulate with RN assistance | Patients maintained on neuromuscular paralytics |
| All mechanically ventilated patients will be assessed by RT and assisted by both respiratory therapy (RT) and PT at time of mobilization | Patients in an acute neurological event (cerebral vascular accident [CVA], subarachnoid hemorrhage [SAH], intracerebral hemorrhage [ICH]) with re-assessment for mobility every 24 hours |
| All patients ambulating in ICU will have portable telemetry | Patients unresponsive to verbal stimuli |
| | Patients with unstable spine or extremity fractures |
| | Patients with a grave prognosis- transferring to comfort care |
| | Patients with a femoral dialysis catheter |
| | Patients with open abdomen, at risk for dehiscence |

BARIATRIC ALGORITHM: BARIATRIC LATERAL TRANSFER TO AND FROM BED/STRETCHER/TROLLEY

(Adapted from Engel H. ICU Early Mobilization at UCSF. 2010 Available at: <http://ptrehab.ucsf.edu/sites/ptrehab.ucsf.edu/files/documents/Early%20Mobilization%20in%20the%20ICU.pdf>.) 14



- The destination surface should be about 1/2" lower for all lateral patient moves .
- Avoid shearing force.
- Make sure bed is the right width, so excessive reaching by caregiver is not required.
- Lateral transfers should not be used with speciality beds that interfere with the transfer. In this case, use a bariatric ceiling lift with supine sling.
- Ensure bed or stretcher doesn't move with the weight of the patient transferring. Use a bariatric stretcher or trolley if patient exceeds weight capacity of traditional equipment.
- "Stand-by for safety." In most cases, if a bariatric patient is about to fall, there is very little that the caregiver can do to prevent the fall. The caregiver should be prepared to move any items out of the way that could cause injury, try to protect the patient's head from striking any objects or the floor and seek assistance as needed once the person has fallen.
- Ensure equipment meets weight requirements. Standard equipment is generally limited to 250-350 lbs. Facilities should apply a sticker to all bariatric equipment with "EC" (for expanded capacity for that particular equipment model).
- If a patient has partial weight-bearing capability, transfer toward stronger side.
- Consider using an abdominal binder if the patient's abdomen impairs a patient handling task
- Identify a leader when performing a task with multiple caregivers. This will assure that the task is synchronized for increased safety of the healthcare provider and the patient.
- During any patient transferring task, if a caregiver is required to lift more than 35lbs. of a patient's weight, then the patient should be considered to be fully dependent and assistive devices should be used for the transfer.