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Strategies for Accommodating Obese Patients in an Acute Care Setting

Abstract | **Article**

Given the statistical trend toward obesity and the skyrocketing increase in bariatric surgical programs, hospitals should address the special design and equipment needs of obese patients in both their short- and long-range facilities planning. Safe patient handling of obese people is an especially important issue, and architects and planners are developing new approaches to minimize workplace injuries associated with caring for these patients, while retaining sensitivity to their unique situations.

Obese patients are often fearful that new environments will not have the appropriate equipment to meet their needs or assist in their healing. Many times they will delay or avoid medical treatment based on access and sensitivity to their healthcare environment. Some obese patients have had to suffer the indignity of being transferred to the hospital's loading dock in order to be weighed, or even put on freight elevators for transport, which can be embarrassing and demoralizing.

Unfortunately, the vast majority of U.S. hospitals are under-equipped to accommodate the growing number of bariatric patients. One reason is the lack of weight-specific design guidelines. Currently, neither the AIA nor the ADA provides specific guidance on physical design associated with the care of obese patients.

The AIA is proposing new bariatric guidelines completely separate from the ADA rules, but these will not be incorporated into the AIA Guidelines until 2010. In the interim, it is important to recognize and respond to these issues and address the needs of these patients in an appropriate manner. A draft of these rules will be made available for review before the end of 2008.

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Hospitals are struggling to serve a growing number of obese patients, and are turning to design experts for advice on creating facilities to accommodate these patients. Healthcare organizations across the nation are also changing their care delivery practices to address the specific needs of our increasingly obese population.

Because safe patient handling of obese people is a critically important issue, architects and designers are developing approaches to minimize workplace injuries associated with caring for these patients.

Currently more than 20 percent of the American population is obese, and between 5 and 10 million of those people suffer from morbid obesity. According to an article by the Johns Hopkins Bloomberg School of Public Health, more than 40 percent of U.S. adults will be categorized as obese by the year 2015.

In addition to the increasing weight of the general patient population, a boom in bariatric surgical procedures, such as gastric bypass, stomach reduction, and banding operations, are bringing an ever-increasing number of obese patients to healthcare providers.

It is important for anyone involved in healthcare construction and renovation projects to understand these issues and be aware of the design, operational, and equipment options available to them.

Defining obesity

Obesity is an excess of body fat that impairs one's health. Obese patients are those people who have a Body Mass Index (BMI) of 30.0 to 39.9. Morbid obesity is typically defined as being 100 pounds or more over ideal body weight, or having a BMI of 40 or higher.

Patients do not necessarily need to be morbidly obese to require special accommodations. Some who fit into the obese category also benefit greatly from the design changes described in this paper. Obese patients encompass a very wide weight range, from roughly 250-300 pounds to more than 1,200 pounds.

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The most basic tasks can be very difficult for obese patients, and this can adversely affect their self esteem. Sitting up, standing, walking, going to the bathroom, taking a shower and moving from the bed to the chair are all tasks that often require assistance. Caregivers need to have the right facilities and equipment to help these patients in a dignified manner.

Statistics show that there is a need to plan for obese patients

- ***According to the CDC, more than 20 percent of the U.S. adult population (more than 60 million people) now has a BMI of 30 or greater, which classifies them as obese.***
- ***During the past 20 years, obesity among U.S. adults has increased more than 60 percent, according to the National Center of Health Statistics.***
- ***According to a study from VHA, Irving, Texas, 64 percent of hospitals saw an increase in severely obese patients in 2004 compared to 2003.***
- ***Obese people demonstrate a higher risk of conditions such as diabetes than do people of average weight.***
- ***The needs of obese patients must not only be considered in inpatient areas, but also in areas such as surgery and diagnostic imaging, where staff must understand weight capacities of equipment such as surgical and diagnostic imaging tables.***

Architects and designers need guidelines

Obese patients access healthcare systems in the same way as all other patients, becoming part of the healthcare delivery continuum through inpatient, ambulatory and outpatient settings. Their physical needs and conditions, however, are highly specialized.

Unfortunately, the vast majority of U.S. hospitals are under-equipped to accommodate the growing number of overweight patients. One reason is the lack of weight-specific design guidelines.

Currently, neither the American Institute of Architects nor the American Disabilities Act provides specific guidance on physical design associated with the care of extremely obese patients. What needs to be done to accommodate obese patients is, in most instances, complementary to and/or one step beyond what is required for patients with officially recognized disabilities.

Architects and designers may think they can cover the issues necessary to accommodate obese patients by following the ADA guidelines, but these guidelines only address legal disabilities, and obesity is not yet considered a legal disability. The AIA is proposing new bariatric guidelines completely separate from the ADA rules, but these will not be incorporated into the AIA Guidelines until 2010. In the interim, it is important that architects

recognize and respond to these issues and address the needs of these patients in an appropriate manner. A draft of these rules will be available for review before the end of 2008.

Because of the growing population of obese people, the special needs of the overweight should be considered when working on all hospital projects, not just bariatric care units. Architects and designers need to consider many things when designing to accommodate obese patients, from wider doorways, to heavy-duty beds and toilets, to overhead patient lifts. Many of these design considerations apply to areas like waiting rooms and procedure rooms as well.

Because there are not yet guidelines for accommodating obese patients in place, code officials and inspectors sometimes need to be educated about things such as bariatric toilets. Often these toilets need to be set 24" off a wall with handrails, which is 6" further than ADA requirements.

Space design solutions for obese patients

Building Entries:

Building entry points need to be designed with comfortable ramps featuring hand rails, and should have door widths a minimum of 3' 2". Ample-sized wheelchairs should be available at the front door. Public toilets as well as waiting rooms should be constructed for the needs of obese patients.

Treatment and Procedure Rooms:

In all hospital treatment and procedure areas, doors need to be sized for movement of the wider bariatric bed and/or wheelchairs. Bariatric beds are about 40" wide with the sidebars down. A power-assisted bariatric bed is 9' long (a standard bed is 8' 6"), and a 700-pound capacity wheelchair has an overall width of 38.5". In areas where these oversized wheelchairs are to be used, a 72" turning radius is recommended, in lieu of the 60" radius required by the ADA.

Doors for exam rooms are recommended to be 3'6" wide, and the recommended opening size for patient rooms and procedure areas is 4'. Alternatively paired doors or sliding doors on overhead tracks can be used for these wider doorways.

Patient Rooms/Toilet Rooms:

To accommodate the morbidly obese, bariatric patient rooms need to be larger than typical rooms, in order to allow for larger beds. Some recommendations suggest that bariatric rooms be designed with 100 additional square feet, for the following reasons.

Because obese patients often have obese family members, the family accommodations need to be geared toward the obese as well. Hill-Rom, an equipment manufacturer, recommends that the bariatric room be at least 272 square

feet, compared with the average private room size of 176 square feet. This allows for 5' of clear space around three sides of the patient's bed to provide ample room for wheelchairs (including a 72" turning radius), walkers and portable patient lifts.



Image 2. "Portable patient lift" Courtesy of Arjo, Inc.

"One of the things that we're finding with bariatric patients is that their family members are also obese," says Douglas W. Reddington, AIA, ACHA, of BSA LifeStructures in Indianapolis. "So not only do we need a patient zone that is larger than standard, we also need a family zone that is equipped with larger furniture."

"At BSA LifeStructures, we try to steer our clients toward a room that includes a patient zone, a nursing zone and a family zone. When a hospital is trying to save money, the element that often gets sacrificed is the size of the family zone. But in the bariatric rooms you have to consider that bigger family zone very seriously."

Toilet rooms need to have a wider door width of 3'6" and adequate space for two caregivers to assist a patient. The toilet should be placed towards the center of the wall to allow room on each side of the commode for assistants. At a minimum, toilet centerlines should be 24" from a wall, in lieu of the 18" required by the ADA. Walls should have extra-strength blocking to accommodate grab bars that support up to 800 pounds, as well as sinks that are capable of supporting additional weight.



Image 4. "Bathroom with double-leaf door to accommodate easy access for patients" Courtesy of author.

Elevators:

Special elevators need to be considered for this population,

especially since the growing trend is to transport obese patients in their own beds rather than stretchers. A 6,000- to 6,500-pound capacity elevator is needed to provide sufficient space for a bed that is 40" wide and 90" long. These elevators can hold the obese patient, bed, equipment, and two staff.

The elevator doors must have a minimum width of 54", though 60" is preferable. There is a significant up-charge for this elevator vs. a pre-engineered, 5,000-pound transport elevator.

Waiting Areas:

In general it is recommended that 10 to 20 percent of general seating in waiting areas should be specified in bariatric sizes. That percentage should be even higher in Emergency Department waiting areas, and should be up to 50 percent in cardiac and bariatric units. As mentioned earlier, obese patients often have obese family members. Designers should therefore also take this fact into consideration for the furniture in waiting areas.

Care should be taken to avoid creating "obese-only" sections in general waiting areas. Loveseats can be a discreet way to mix this furniture with the standard waiting room furniture.

Staffing implications when caring for obese patients

Anecdotally, the cost of equipment to assist with the movement of obese patients is significantly less than the costs of worker's compensation claims related to staff injuries arising from assisting in the movement of obese patients.

- There are increased physical problems for staff and attendants in administering care to the obese patient. The National Safety Council reports that a healthcare worker is 41 percent more likely than the average worker to need time off because of serious occupational injuries and illness.*
- An estimated 12 percent of nurses annually leave their profession due to back injuries, and more than 50 percent complain of chronic back pain.*
- Costs associated with each back injury claim range from \$5,000 to \$100,000. Indirect costs, including lost work days, increase that number.*
- According to the Bureau of Labor Statistics, the healthcare profession boasts one of the largest nonfatal occupational injuries and illnesses involving missed work days in the nation.*

Overhead lifts result in a significant decrease in staff and patient injuries

Well-designed lifts simplify patient transfer and can reduce staff injuries involved with lifting patients. Whether portable or ceiling-mounted, having a lift system in these patients' rooms is a necessity.

An example can be found at Seton Specialty Hospital, a long-term acute care hospital (LTACH) that opened its doors in Indianapolis in May 2007.

According to Bob Droese of Hammes Company, "Seton had done a great deal of marketing to bariatric patients for a number of years, so when this building was designed, everything about the facility was focused on the obese patient. We put lift systems in the ceiling which are efficient and much more aesthetically pleasing than portable lifts."

"The rate of staff injuries is normally very high in a facility like this one, with over 20 percent stemming directly from the handling of obese patients," continues Mr. Droese. "These lifts have helped cut that rate down to around 3 percent. From a risk management and insurance perspective, this reduction is very significant."

In new construction, the most common lift design is a straight track extending perpendicularly from the patient's bed. Some curved ceiling lift designs can even lead from the bed to the toilet room. Many of these systems provide full room coverage and are designed to allow staff members to lift, rotate, and recline or decline patients without manual assistance.

Due to budget constraints, many hospitals building new facilities are building in the structural support above the ceiling during construction, with the option of installing the actual lift equipment sometime in the future.

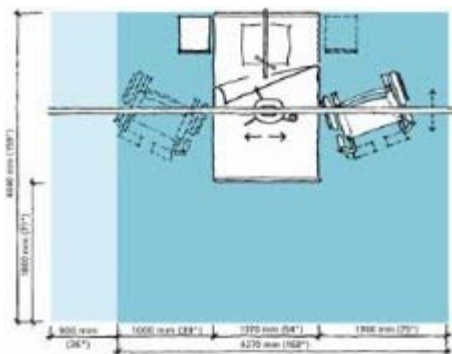


Image 3. "Plan view of typical ceiling mounted patient lift" Courtesy of Arjo, Inc.

"Seton Specialty Hospital installed all the overhead lift structures, but only ordered 50 percent of the lift equipment when the building was constructed," continued Mr. Droese. "They plan to put the rest of the equipment in the budget for next year. This was a good strategy to use, because now the infrastructure is there when they need it."

Ceiling lifts can be retrofitted into existing spaces, but they can cause problems, such as reduced overhead clearance and interference with existing lights, HVAC systems, sprinkler systems, etc. Forward-thinking hospitals are planning for the future by building in the necessary

infrastructure when doing new construction and renovation.

Cost Premiums for Overhead Lifts in Patient Rooms

When Seton Specialty Hospital built its new 74-bed facility, eight rooms were designed for the 1,100-pound capacity solution and the remainder had the 440-pound solution. The cost (not including the actual lift system) was \$1,500 to \$1,800 per room.

The State of Washington has a grant program in place that gives facilities \$1,000 to install each patient lift. At St. Francis Hospital in Federal Way, Washington, all of the ICU/PCU rooms in a 30-bed addition were outfitted with ceiling-mounted lifts. This was in part made possible by the State of Washington offering the grant program with the intention of preventing workplace injuries from patient lifting. The state offered to buy the equipment if the facility would be responsible for putting in the infrastructure and covering the cost of installation.

Lift teams, a new concept to help keep staff injuries low

Some hospitals and healthcare facilities are trying a human-powered alternative to reduce staff injury in dealing with obese patients.

As an alternative to portable lifts or overhead lifts, the Harborview Medical Center in Seattle has implemented a lift team. The purpose of the lift team is to assist the nursing staff in caring for patients with spine precautions and obese patients (greater than 250 pounds).

The teams are made up of hospital assistants and medical assistants with specialized training. They assist with turning patients, getting patients out of bed, and changing linens. The team members also provide instruction and reminders to all staff about appropriate postures, positions, and work practices, allowing turning and transfers to occur efficiently with the least amount of bodily stress.

Lift Team Benefits and Examples

Hospitals that have established trained and dedicated lift teams have benefitted from dramatic reduction in workplace injuries and related costs.

Sutter Health in California instituted its first lift team in 1992. Since that time, it has experienced a 60 percent drop in the frequency of workplace injury claims.

Another California facility, U.C. Davis Medical Center, expects to save \$500,000 annually through its lift team program. It has seven two-person teams that are on call 24 hours a day, 7 days a week for assistance with moving any patient heavier than 200 pounds.

Other medical equipment considerations

The healthcare industry has developed equipment that addresses the requirements for bariatrics, so designers must be aware of sizes and ratings of the following:

Toilets and Sinks:

Vitreous china toilets have a maximum capacity of about 300 pounds. Toilets stressed with additional weight can fail both by falling off the wall and by developing cracks in the material. The most common solution on the market today is floor-mounted stainless steel toilets with a capacity of 5,000 pounds. These toilets are available with an enamel coating.

Both toilets and sinks should be floor mounted, and the center line for toilets should be 24", versus 18" on the center line for a standard size toilet.

Wheelchairs and Beds:

Bariatric wheelchairs are sized by weight-limit categories. The largest models can have seat widths of up to 48" and require a 6' or larger turning radius, whereas current ADA guidelines for wheelchairs require a 5' turning radius.

High-quality bariatric beds address the challenges inherent in bariatric care: patient comfort and mobility. The composite bariatric bed is 98" long when extended, and 61" wide with safety sides in place. Primary considerations include weight and size capacity, ranging from 600- to 1,000-pound weight capacity, in addition to specialized features such as in-bed scales and a mechanism to raise the head of the bed while lowering the foot of the bed to bring the patient to a sitting position.



Image 5. "Bariatric shower commode chair" Courtesy of Arjo, Inc.

Bariatric Furniture:

To accommodate the growing bariatric population, healthcare furniture options have changed in size and structure. Facilities are finding that bariatric furniture is a necessity not just for patients receiving bariatric treatments and surgeries, but also for an increasing percentage of the general population.

Designers and medical equipment planners need to be aware of the weight-bearing capacity of bariatric furniture. Many pieces are designed with load capacities up to the 600- to 700-pound range; however, patients now coming to bariatric units can weigh up to 1,000 pounds. Hospitals

need to allow for extra space for this larger furniture.

Glen Barras, president of the healthcare seating company Sitris in Toronto, recommends having 10 to 20 percent of all general seating in bariatric sizes, with a higher percentage in ED waiting areas, and a percentage of up to 50 percent in cardiac units.

Obese patients deserve appropriate accommodations

There are many reasons why design guidelines for the obese and bariatric patients are needed, but perhaps the most important reason is to retain patient dignity.

In the past, many facilities did not have dedicated units for obese patients. These patients were oftentimes handled on an ad hoc basis, with existing hospital equipment reinforced or lashed together as needed. Some obese patients had to suffer the indignity of being transferred to the hospital's loading dock in order to be weighed. Hospitals have resorted to using freight elevators to transport bariatric patients, which can be embarrassing and demoralizing.

Amanda R. Budak, RN, MSN, CBN, is a program manager for the Digestive Disease Service Line at the Medical University of South Carolina. "Obese patients are often fearful that new environments will not have the appropriate equipment to meet their needs. Many times they will delay or avoid medical treatment based on access and sensitivity to their healthcare environment."

"Because of their fears, it is extremely important to the future welfare of obese patients that they be treated with sensitivity and respect, and that all healthcare facilities plan for the specialized needs of the obese patient," continued Ms. Budak.

Although some hospitals have begun responding to the emerging demand for bariatric care, many have not made the changes necessary to truly embrace the unique needs of the severely obese patient population.

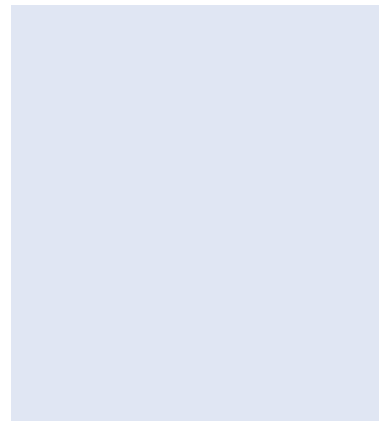
In the past, it has been very obvious when larger patients were staying in hospital rooms, as the extra equipment needed to accommodate their needs would often spill out into the hallway, making their rooms stand out from others. When these patients have the right size rooms and equipment specific to their needs, their better feelings about their surroundings will contribute to an improved healing process. It is important on all hospital projects that we make special considerations for the overweight and obese population.

Considering the trend toward obesity and the skyrocketing increase in bariatric surgical programs, hospitals must address the special design and equipment needs of obese patients in both their short- and long-range planning.

About the Author:

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The Academy Journal is published by the AIA Academy of Architecture for Health (AAH). The Journal is the official publication of the AAH and explores subjects of interest to AIA-AAH members and to others involved in the fields of healthcare architecture, planning, design and construction. www.aia.org/aah

This article originally appeared in *The Academy Journal*, published by the AIA Academy of Architecture for Healthcare (Volume 11 – September 2008).