



## Class III Obese Patients: The Effect of Gait and Immobility on Patient Falls

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### ABSTRACT

*Gait disturbances and immobility are risk factors that are highly correlated with a patient's risk for a fall. A query of five years of event reports to the Pennsylvania Patient Safety Authority's Pennsylvania Patient Safety Reporting System (PA-PSRS) found that of the class III obese patients who had mobility issues and fell, 7% of these falls were harmful enough to be classified as Serious Events (compared with 3% in the overall PA-PSRS population in 2011). Gait disturbances were identified in 68% of the reports of class III obese patients who fell. Subsequent need for lift teams or lift equipment use following a fall was reported in 64% of the reports of class III obese patients who fell. Targeted falls risk assessment, implementation of falls prevention strategies, and lift teams and lift equipment are essential items to assist in keeping class III obese patients safe when transferring, turning, or ambulating. (Pa Patient Saf Advis 2013 Sep;10[3]:96-8.)*

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### INTRODUCTION

Class III obese patients are identified as having a body mass index (BMI) greater than or equal to 40<sup>1</sup> or weighing 100 pounds or greater than their ideal body weight.<sup>2</sup> The extra body mass limits flexibility, slows down movement, and affects gait. Gait is a combination of the person's balance, control of the body's trunk and limbs, and physical ability to respond to changes in the environment.<sup>3,4</sup> People with BMIs greater than or equal to 40 have been shown to have multiple physical changes in their gait as a result of the location and distribution of the additional weight.<sup>5</sup> When compared with people whose BMI is between 20 and 25, class III obese people have been identified as having a distinctly different pattern of walking.<sup>3,4</sup> The gait variation observed and measured in people with class III obesity closely resembles gait variations found in people who have Parkinson's disease or strokes, namely shorter stride length, wider stance, and decreased cadence (i.e., steps per minute) and velocity.<sup>3,4</sup> Alterations in gait, coupled with immobility, predispose class III obese patients to loss of muscle strength, which heightens the propensity to fall and can make ambulation a perilous activity.<sup>6</sup>

In addition, certain comorbid conditions that class III obese people are at risk of developing, such as venous insufficiency and venous ulcers, can also impede their gait.<sup>7</sup> Finally, the increased risk of falling is exacerbated when there is an overestimation of functional mobility and capabilities coupled with an underestimation of the degree of imbalance and muscle weakness.<sup>8</sup>

### CLASS III OBSE PATIENT FALLS EVENT REPORTS AND SURVEY RESULTS

A query of five years of reports, from January 1, 2007, through December 31, 2011, to the Pennsylvania Patient Safety Authority's Pennsylvania Patient Safety Reporting System (PA-PSRS) database identified that 20% (n = 357 of 1,774) of class III obese patient reports were falls event reports. This percentage of falls event reports is higher than the percentage of falls event reports (16%, n = 35,640 of 228,835) in the overall PA-PSRS population for 2011.<sup>9</sup> Class III obese patients were identified through a query of PA-PSRS narrative descriptions using the terms "obese," "morbidly obese," or "bariatric."

A detailed analysis was performed on the falls event report narrative descriptions to determine how many falls reports identified immobility as a contributing factor. Immobility was identified when the PA-PSRS narratives stated that patients needed moderate or maximum assistance when turning, transferring, or ambulating or when patients were on bed rest or had conditions indicative of immobility (e.g., ventilator dependency, recent surgery, limb infections, leg amputations). This subset of class III obese patient falls-related PA-PSRS event reports in which immobility was identified had a total of 329 falls reported. A further analysis of the Serious Event (i.e., an adverse event resulting in patient harm) reports was explored after identifying a study that showed class III obese patients as being at *lower* risk for an injury with a fall.<sup>8</sup> Of the class III obese patients who had mobility issues and fell, 7% of these falls were harmful enough to be classified as Serious Events; this is more than twice the percentage of falls-related Serious Events in the overall PA-PSRS population in 2011 (3%).<sup>9</sup>

PA-PSRS falls event reports revealed three different circumstances that were present in cases in which class III obese patients fell: weight distribution issues, gait disturbance, and overestimation of functional status by the patient. "Weight distribution" was the term used to identify patients who had an excess amount of weight and a distribution of excess body mass that could negatively impact the patient's ability to move (i.e., shifts in the center of gravity that can "throw" the patient off balance), regardless of whether

the patient was stationary or ambulatory. Weight distribution issues were present in all 329 falls event reports. “Gait disturbance” focused on the patient’s stance, speed of walking, muscle strength, and agility and was identified in 68% (n = 225) of the falls event reports. Overestimation of function by patients was identified in 57% (n = 186) of the falls event reports. The following are PA-PSRS narratives that illustrate these issues.

*[An obese patient was] admitted through the emergency department for increased shortness of breath. [The nurse and respiratory therapist] had just left the patient’s room minutes prior to the fall. The patient requested nothing when asked [if the patient needed anything]. The patient decided to get out of bed to [use the] bedside commode on his own because he felt stronger and [the commode] was only one step away from the bed. The patient stated that the wheels went out from under the patient on the bedside commode, and [the patient] fell. The patient ripped the top portion of the left middle finger off during the fall.*

*An obese postoperative patient was sitting on an elevated toilet seat in the patient’s bathroom. The patient stated they leaned over too far to wipe themselves and slid off the seat and fell to the floor. The patient was [being] assisted back to bed when a small amount of blood was noticed on the dressing. [When the] dressing was removed to check the wound, it was found to be dehisced.*

It was also noted that 64% (n = 211 of 329) of the falls event reports indicated the need for a mechanical lift or additional personnel to help lift the patient to a safe location after a fall.

*The patient sustained a hip dislocation while being lowered to the floor. Three staff members utilized a gait belt to assist the obese patient off*

*the bedside commode. The patient’s knees buckled, and the staff lowered the patient to the floor. The patient was placed back into bed utilizing a patient lift. The patient had a total right hip replacement [previously and] complained of right hip pain [after the fall]. An x-ray revealed a [hip] dislocation.*

In July 2012, the Authority conducted a hospital statewide survey to identify hospital preparedness to provide general medical care to class III obese patients. The survey was administered to all hospitals in Pennsylvania, and the response rate was 35.3% (n = 85 of 241).<sup>10</sup> Several of the survey questions asked respondents about the types of educational programs, patient care policies, and care plans that were developed for the care of class III obese patients. The statewide survey respondents identified that the majority of hospitals that provide educational programs (93.9%, n = 31 of 33) address body mechanics and lifting techniques; however, only 6.0% (n = 4 of 67) of respondents indicated that their hospital had lift teams.

## WAYS TO PREVENT FALLS OF CLASS III OBESE PATIENTS

### Falls Risk Assessment

A focused falls risk assessment and periodic reassessment is the first step to identifying patients who are at risk for a fall.<sup>11</sup> Gait instability, lower-extremity weakness, and assistance for toileting are three of six risk factors that are highly correlated with a risk to fall<sup>12-14</sup> and are more likely to be seen in the class III obese patient population.<sup>6,15</sup> Targeted questions and assessment related to these risk factors should be included in the falls risk assessment for class III obese patients. Assessing functional status prior to admission can establish a baseline level of mobility and reduce the chance of unrealistic expectations of both the staff and the patient during the patient’s hospital stay.

### Falls Prevention Strategies

When considering the implementation of falls prevention strategies, a multifaceted approach that includes care processes (e.g., identification bracelets, medication review, patient education), technology (e.g., call buttons, lifts), and the physical environment (e.g., installation of bariatric equipment such as grab bars and lifts, size of the room) has demonstrated results in minimizing falls and injuries from falls.<sup>16-18</sup> When selecting targeted falls prevention strategies, align the strategies with the specific type of risk factors, such as gait instability and lower-extremity weakness, that may have been identified during the falls risk assessment.

### Lift Teams and Equipment

Transferring, lifting, or assisting class III obese patients to ambulate safely requires good planning that starts prior to the patient’s arrival to the hospital. The first step in planning can begin with the development of lifting policies that take into account criteria such as setting a 35-pound manual lifting weight limit for staff members who are expected to lift patients who are very heavy and dependent.<sup>19</sup> Other lift policy considerations include the availability, acquisition, and use of bariatric lift equipment, the establishment of lift teams, and the implementation of a safe patient handling program.<sup>20,21</sup> When identifying lift team members, planning can include the identification of a lift team for each shift and having additional lift team members when needed or on call. Protocols on special handling and movement challenges related to class III obese patients are currently available and address transfers, handling, and repositioning patients.<sup>15</sup> For example, the development of an algorithm on transferring class III obese patients from a bed to a chair or from a chair to a toilet or an algorithm on repositioning patients while in bed are protocols that can help staff keep patients and the healthcare team safe from a fall event and/or injury.<sup>15</sup>



**LIMITATIONS**

The 329 PA-PSRS class III obese patient falls event reports identified for this analysis underrepresent the actual number of class III obese patients who experienced a fall event during hospitalization. Identification of class III obese patients in PA-PSRS was accomplished through a query of the event report narrative descriptions, which relies on the subjective assessments provided by the individuals completing the event reports rather than the identification of patients by their weight or BMI.

Another limitation is in the identification of a patient’s mobility status. Mobility issues were identified by subjective assessments of patients needing moderate to maximum assistance. Standardizing terms such as “moderate” and “maximum” assistance might produce different results. In addition, limitations associated with the statewide survey include (1) a potential response bias toward hospitals that care for class III obese patients, (2) a potential non-response 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**

Gait disturbances and immobility issues in class III obese patients place these patients at an increased risk for a fall. Some ways to mitigate this safety risk are through falls risk assessment and reassessment as well as careful planning of class III obese patient policies and protocols. Developing class III obese patient policies and protocols that focus on lift teams, lift equipment, and algorithms to safely move class III obese patients is a way to proactively plan for the challenges presented when caring for this patient population.

**NOTES**

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