BARIATRIC POSITIONING

Bariatric consumers face many challenges for assisted mobility and seating. Too often the goal may be to find a wheelchair (manual or power) that simply has an adequate weight capacity. As consumer weights exceed 300 lbs., there are greater considerations and possible complications in the prescription process.

**seat depth challenges: lymphedema**

One of the secondary risks of long-term morbid obesity is the potential for severe lymphedema to develop. As the consumer’s mobility becomes more restricted and they spend greater amounts of time in a seated position, the lymphatic system may be occluded in the groin region. Lower extremity lymphedema can impact the functional seat depth and anterior cushion shape and length as the shape and size of the lower extremities changes and increases. Additional complications such as cellulitis or lipoma pose additional challenges.

*Figure 1* shows a lipoma mass that was eventually surgically removed accounting for a decrease in weight of approximately 80 lbs. Before surgical removal, this area required support from the seating system itself and impacted both seat width as well as seat depth. *Figure 2* shows the same consumer seven years later in a manual wheelchair with a 20” seat depth, which the seating team determined was 3” too deep. As the seat depth was too long, the front edge was in contact with the posterior aspect of her lower legs. Contact with the right leg constantly irritated the old surgical site where the lipoma was removed. She also presented with chronic recurrent cellulitis, a common infection of the skin and subcutaneous tissues. Lymphedema predisposes to recurrent episodes of cellulitis.

*Figures 4 and 5* show anterior and lateral views of a newer manual wheelchair (30” wide x 18” deep), which was provided in 2012. This seat depth is 2” shorter than the previous wheelchair and, with new adjustable back upholstery, the seat depth is more appropriate in comparison to the stretched back upholstery of the previous mobility device. This prevents contact with the posterior lower legs. This consumer is very independent. A home evaluation determined a mixture of ambulation and manual wheelchair use that fully met her in-the-home needs. As she partially propels using her lower extremities, the seat-to-floor height accommodates this. In addition, she demonstrated the ability to manage the heavy-duty wheelchair up three to four steps to get into her apartment independently.

**seat depth challenges: posterior pelvic tissue**

Excessive posterior pelvic tissue distribution (or posterior gluteal adipose tissue) is often difficult to measure and accommodate. This

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In order to improve lower extremity contact to the floor, footrests and seat cushions are often abandoned by the consumer. This can result in extremely high areas of pressure, particularly at the front edge of the seat surface. It is important to note signs of high pressure, as circulation can be compromised in this population.

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frequently results in inappropriately long seat depths, a discrepancy that can cause contact and pressure in the popliteal region. In addition, failure to accommodate the unique posterior shape created by this tissue results in poor support of the trunk often causing a reclined posture. As with any person sitting in a system that is too deep, this lack of posterior pelvic and trunk support can cause chronic back pain.

Seating and impact on mobility

Seat-to-Floor Height: Very often, consumers with excessive morbid obesity utilize manual wheelchairs and attempt to propel them with combinations of upper extremity and lower extremity motility. In order to improve lower extremity contact to the floor, footrests and seat cushions are often abandoned by the consumer. This can result in extremely high areas of pressure, particularly at the front edge of the seat surface. It is important to note signs of high pressure, as circulation can be compromised in this population. For mobility devices with fabric or sling seat materials, watch for stretching and tearing over time. Some wheelchairs have reinforced seat materials as standard, or perhaps as additional, charge options. If a consumer is using their lower extremities for manual wheelchair propulsion, ideally the seat-to-floor height, including a cushion, must reflect this.

Endurance: The consumer’s ability to perform propulsion and sustain mobility is frequently limited by poor endurance related to obesity and co-morbidities. Compromised respiratory function is a common secondary complication for this population. Watch for labored breathing with mild exertion. These consumers are very often independent with standing transfers and may be able to ambulate somewhat within their household. However, power mobility may be required for longer distances.

Rear Wheel Placement: Consumers who need to rely on their arms may not have appropriate access to the rear wheels for propulsion, depending on the options available for their weight and their body shape (see Figure 5). Excessive posterior pelvic tissue pushes the consumer forward of the rear wheels, impacting self-propulsion and overloading the front casters. The wheelchair frame must include the necessary adjustments to move the rear wheel in a more optimal position for self-propulsion and center of gravity.

Searching for seat support surfaces and back supports that are size and weight appropriate can be difficult. If the consumer requires increased postural support, it may be impossible to find off-the-shelf seating solutions. Although many more heavy duty options are available today, the wider the equipment must be and the higher the weight capacity required, the fewer options are available.

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