

April 30, 2010

To Whom It May Concern:

### **Medical, Functional, Social, and Equipment History**

Gloria is a 67-year-old female with diagnoses of paraplegia, since August 2005, osteoporosis, osteoarthritis, diabetes mellitus, hypertension and acute renal failure. In addition, she has a stage IV right ischial tuberosity ulcer and three stage III sacral ulcers. Gloria lives with her husband in a multiple room elevator apartment, receiving assistance from a home attendant for all self-care, home management and mobility. Due to her spinal cord injury, she cannot walk. She relies on a Manual Wheelchair for all mobility. Without a wheelchair, she is bed bound. She requires a wheelchair to allow for access into the kitchen for food and bathroom for hygiene. Gloria is currently utilizing an Invacare 9000XT Manual Reclining Wheelchair (serial number was worn off). This was paid for by Medicare and Medicaid and provided by ABC Medical after she was discharged from the hospital in 2005. This is not medically appropriate. Gloria has developed postural deformity and impairment in skin integrity. Since her wheelchair does not properly support her, her sitting tolerance is very limited. As a result she is forced to spend increased time in bed throughout the day. There is not option to modify this wheelchair or provide adequate seating. It is therefore essential she is provided with a medically appropriate Manual Wheelchair at this time. Gloria was referred to the ABC Rehab Center for evaluation of her wheelchair and positioning needs.

### **Physical Assessment and Sensory Evaluation**

A physical assessment was performed with the ATP present, which demonstrated spinal and pelvic deformity, as well as limitations in upper and lower extremity range of motion. Specifically, she presents with a fixed right pelvic obliquity, lower by two inches, fixed rotations forward to the left and fixed posterior pelvic tilt. Her spine is curved with a fixed scoliosis with thoracic apex on the right and cervical on the left. There is a rotation running the entire length of her spine, forward to the left. This is fixed. In addition, there is a flat lumbar space, fixed thoracic kyphosis and cervical lordosis. Her hips are limited in range of motion, lacking 40 degrees on the right and 45 on the left of flexion from a functional seated position. In addition, her right hip is limited in adduction, lacking 15 degrees, and internal rotation, lacking 20 degrees. The left hip is limited in abduction by 20 degrees and external rotation by 25 degrees. The result is a windswept deformity to the left. Her knees are contracted at 90, with a severe joint deformity at the left knee from a previous fracture. The result is a leg length discrepancy. Both ankles are fixed with planter flexion contractures. Gloria's upper extremities are also severely limited, with adduction and internal rotation contractures bilaterally, elbow flexion contractures and pronation contractures. Her balance is poor, both static and dynamic. Due to damage to her spinal cord, she presents with impaired sensation below her level of injury and increased spasticity in a flexor pattern, which worsens upon exertion or

when jostled. Gloria currently presents with a stage IV right ischial tuberosity ulcer, and three conjoining stage III sacral ulcers. She verbalizes complaints of discomfort in her back, pain in both knees and pain at the location of the ulcers. She also verbalizes discomfort along her seating surface within 30 minutes of sitting. Gloria's measurements are as follows:

|                            |                       |
|----------------------------|-----------------------|
| Hip Width= 16"             | Seat to Shoulder= 21" |
| Overall Width= 17"         | Seat to Head= 31"     |
| Seat Depth: L=14"; R=16"   | Seat to Axilla= 16"   |
| Knee to Heel: L=14"; R=17" | Seat to Elbow= 9"     |
| Weight= 170                | Chest Width= 13"      |
| Height= 62"                | Chest Depth= 9"       |

### **Equipment Recommendations**

Based upon the physical assessment and evaluation of client needs, Tilt in Space Wheelchair is recommended with a Custom Back. As indicated above, Gloria cannot walk. Furthermore, due to poor balance and fixed deformity she cannot sit in her current wheelchair. She slides forward out of the seat, shifting to the side. Even with the addition of a seating system, Gloria will not be properly supported. Her deformity will continue to worsen, as will her impaired skin integrity. A Manual Tilt In Space Wheelchair is recommended for Gloria for several reasons. First, Tilt results in the posterior displacement of weight from the seat to the seat and back, with increased surface area coverage. Peak pressure is decreased and circulation encourage. This will facilitate wound healing and promote good skin integrity over time. Gloria is incontinent, dependent for weight shift, and has wounds. Even after these wounds heal she will have scar tissue at the location. These multiple factors will result in a high risk for future impairment unless she is properly positioned. Gloria tolerates sitting for one hour at a time in her current wheelchair. When not in her wheelchair she is in bed. This situation will result in illness and additional impairment in skin integrity. Therefore, it is essential Gloria utilize a wheelchair with dynamic positional changes. Tilt is also recommended for Gloria to halt the progression of her deformity. Tilting back results in the shift of gravity from superior to anterior the trunk. This will facilitate spinal extension, with abdominal and thoracic expansion. Not only will this halt the progression of postural deformity, but it will also promote physiological function. This is essential for Gloria since she has already developed impairment in digestion. Tilt is recommended for Gloria to facilitate function. Tilting the wheelchair back after transfer allows for proper transition into the center of the seat, promoting good alignment and equal pressure distribution. In addition, a Manual Tilt in Space Wheelchair will allow for tilting Gloria back for positional change and then bringing her back upright to eat and digest. Gloria cannot be positioned in static tilt because she will aspirate after eating if she is in a tilted position. Finally, Tilt is recommended to diminish complaints of discomfort. Gloria shifts in her seat due to discomfort in her back and along her seating surface. Tilting back will remove pressure from her back to diminish complaints of discomfort. Given her needs for a wheelchair that will halt the

progression of deformity, promote wound healing and good skin integrity, and facilitate function, the only option for Gloria is a Tilt in Space Manual Wheelchair. The Solara was selected over other manufacturer's models since it will best fit her residence, allowing for access into her kitchen and bathroom better than the alternative models. Given her needs, the Solara is the best option for Gloria for good support and to maintain her within the center of the seat.

## **Accessories**

To receive the benefits of the recommended wheelchair and seating system, Gloria will require several accessories. Specifically, the **Transport Ready Option** is necessary for safety during transportation. Gloria must travel to the hospital for regular medical appointments. There is no location on the frame to secure the wheelchair safely without the Brackets. Therefore, they are necessary for safety. A **Flush Seat Pan** is recommended to properly support the seat cushion. The alternative will result in flexion of the seat cushion, diminishing its supportive and pressure relieving capabilities of the recommended seat cushion. To support both upper extremities and halt the progression of deformity, **Height Adjustable Armrests** are recommended. Non-Adjustable Armrests will result in increased spinal flexion and peak pressure along the seating surface. This will not only worsen her postural deformity, but will also result in further impairment in skin integrity. To support both lower extremities, **Swing away Footrests with a BioDynamics Custom Split Height Footbox** is recommended. As indicated above, Gloria presents with knee contractures and deformity, with a dramatic leg length discrepancy. The only way to properly support her legs is by tucking them. She cannot extend beyond 90 degrees, and the deformity requires the left knee be bent even more. Furthermore, due to the windswept deformity, she cannot place her feet on the plates due to the discrepancy in their length. Several options were tried during the assessment, but none were able to provide adequate support. Therefore, a **BioDynamics Custom Footbox** is requested at this time. This will allow for a **Split Height** inside achieving adequate support along both feet. There is no alternative option to support her asymmetrical deformity. The **Swing away Footrests** are necessary to secure the Footbox to. We will not be able to secure this to the frame without the Footrests. **6" x 2" Semi-Pneumatic Casters** are needed to achieve the necessary seat to floor height to add the Footbox to the frame. Per the manufacturer, we cannot utilize a smaller Caster and still have enough front clearance. Therefore, the only option, as per the manufacturer, is the 6" x 2" Semi-Pneumatic Casters. Neither Gloria nor the husband is able to maintain air tires. They will however be independent with **Rear Tires with Flat Free Inserts**. Providing her with these will prolong the life span of the wheelchair prior to the need for repair. To support her head when tilted, a **Headrest with Detachable Hardware** is recommended. The curve of the pad is adequate to contour to the occipital region of her skull, diminishing peak pressure. The smaller Pad is requested for good head support. This Headrest but be **Detachable**. After being transferred, Gloria's caretakers will tilt her back and come from behind to pull her back into the wheelchair. If the Headrest cannot be removed, she will not be safely transferred into the wheelchair.

Finally, a **Bodypoint Padded Lap belt** is recommended for pelvic stability and to maintain Gloria within the center of the seat. The Padded option is requested due to the need to snug the Lap belt for good support. The Standard Lap belt will result in abrasion along the anterior portion of her pelvis, whereas the Padded will promote good skin integrity.

### **Recommended Seating System**

To halt the progression of deformity and promote good skin integrity, a **Custom Biodynamics Back with Swing away Lateral Trunk Supports and Hip Guides**. As indicated above, Gloria has poor balance and significant spinal and pelvic deformity. There is no off the shelf option to support this deformity due to its asymmetrical nature and extensive curvature. Therefore, she requires a Custom Back. The Biodynamics Back is necessary to allow for different viscosities of foam to be layered to accommodate to this asymmetry. In addition, Gloria requires aggressive **Lateral Trunk Support** to maintain an upright posture. Without these, she falls to the side. However, with snug Lateral Trunk Supports she was able to achieve more neutral alignment and sit more upright. These must be able to **Swing away** since they will have to be snug. If they cannot swing away, she will not be appropriately supported or adequately transferred into the seat. They will either have to be loose to facilitate transfers, worsening deformity, or snug and present her from being safely transferred. Therefore, they must swing away. In addition, **Hip Guides** are requested for pelvic stability. Gloria presents with a pelvic obliquity. The Lateral Hip Guides will provide adequate lateral support to decrease lateral shifts to the side, worsening the spinal deformity. There is no less costly option to support her asymmetrical spinal and pelvic deformities. It is essential she is properly supported to promote wound healing and encourage good skin integrity. Fluid was ruled out due to concerns she would bottom out on the anterior wall of the ischial well, further impacting her skin integrity. Foam was ruled out because she could not be adequately immersed into the cushion with full surface arc coverage and decreased peak pressure. This will promote circulation and wound healing. There is no less costly option to support her asymmetrical deformity and promote wound healing. With this cushion, the Simulated Custom Back and Solara Wheelchair, not only did Gloria demonstrate improved overall alignment, but she also expressed decreased complaints of pain and discomfort, remaining in this wheelchair for an extended period of time without verbalizing complaints of discomfort. Given her needs, this is the most appropriate wheelchair and seating system.

### **Justification**

Gloria is dependent for all her self-care, transfers, and mobility. Furthermore, she has developed postural deformity and impairment in skin integrity. Her sitting tolerance is extremely short, resulting in transfer back into bed within a short period of time of sitting. Without a new wheelchair, Gloria will become bed bound, resulting in infection and further illness. However, with the above-recommended wheelchair, not only will wound healing and good skin integrity be promoted, but

postural deformity will be halted, function encouraged, and sitting tolerance increased.

Your consideration of the above-recommended equipment is appreciated. Questions can be directed to the ABC Rehab Center.

Thanks