

Statement of Medical Necessity and Equipment Justification Seating, Positioning and Mobility Assessment

PATIENT'S NAME: Wilma Woodstock

AGE: 4 yrs, 9 months.

MEDICAL DIAGNOSIS: Cerebral Palsy, visual impairment, seizure disorder

THERAPISTS EVALUATING; Melinda, OTR/L, Susie COTA/L, Karen M. Kangas OTR/L

Medical Necessity and Justification for Equipment

Identification of Needs/Reason for Referral

Wilma ("Wilma") is a 4 year old female diagnosed with cerebral palsy. She is non-ambulatory. She is unable to push a manual wheelchair, and her hands are not able to manage a joystick. She is a candidate for powered mobility for functional independent mobility utilizing alternative access.

In the past, we did not have equipment available to adequately support very young children like Wilma. Today, we not only have equipment which is small in size, we also have powered mobility equipment which has programmable electronics. This allows us the ability to provide young children with opportunities for functional independent mobility.

Medical Considerations

Wilma presents with a complex medical history. She was born via C-section at 38 weeks gestation. She was admitted to the Neonatal Intensive Care Unit at birth. Wilma's oral feedings are supplemented with tube feedings. She currently receives medication for a seizure disorder and is currently medically stable. Wilma wears glasses. Wilma has also recently received Botox injections.

Wilma is prone to skin irritation/breakdown in the sacrum and lower back due to her rounded, collapsed posture, if she is not adequately supported in seating.

Motor Assessment

Reflexes and Abnormal Muscle Tone:

Wilma presents with hypertonicity throughout her upper and lower extremities and with hypotonicity in her trunk. There also appears to be some reflex components present which along with her increased tone interfere with independent, isolated UE control.

Range of Motion/ Motor Strength:

Wilma's lower extremity active ROM is limited in hip extension, rotation and abduction. She wears bilateral MAFO's. Wilma is able to tolerate weightbearing in supported standing and uses an Easy Stand Magician EI stander at home. In the classroom she has been standing with her MAFO's and knee splints in a Rifton stander.

Wilma UE PROM is within functional limits with although spasticity appears to increase proximally almost limiting ROM of shoulder end ranges. Functional AROM in her UE's is only emerging and is inconsistent. Wilma does attempt to bring her right hand to her mouth for exploration at times, or to comfort herself.

Wilma's hands are typically postured with fingers flexed and thumbs out of palms but can be easily ranged. A limited grasp reflex can be noted in either hand. At present, her functional UE function is quite limited.

Voluntary, Isolated, Controlled Movements:

Wilma does demonstrate head control when in a supported upright posture and when engaged in activity. In a seated weight bearing position, and when utilizing a lightweight trunk orthotic vest on for additional trunk support along with feet on the floor, Wilma has become more able to support herself. Her upper extremity control appears limited but some movements do appear to be more purposeful than reflexive in recent months.

When supine on the floor, Wilma does attempt to move by extending her body and using her head and feet to initiate movement. Wilma does attempt to position her arms under her to push up, but for the most part requires assistance to do so. Once positioned, Wilma is beginning to push up on her forearms while pulling her head up to explore, but only able to maintain for a short period of time. At times, she will also initiate pulling her legs in but is unable to get into a quadruped position without assistance.

Accuracy, Fatigue, Endurance:

Wilma attends school daily. She is up every day, and is able to demonstrate an energy level expected of a child her age.

Sensory-Motor Patterns and Processing:

Wilma does appear to exhibit some sensory processing problems. When she is held in an upright posture, often her trunk will collapse into the adult's hands, or lean against any supported surface. This collapsed trunk appears to be more due to sensory processing problems, than to tone problems. When Wilma was involved in the powered mobility evaluation, and was able to utilize her head for access, she was able to demonstrate upright independent trunk support, and active weight bearing through her pelvis.

Various activities, handling strategies and the use of varied orthotic supports appear to be aiding Wilma in using her righting reactions during activity.

It is very important to continue to provide Wilma with activities and equipment which can continue to stimulate the righting and equilibrium reactions she needs. With children with motor delays this is often difficult. They can only really obtain righting reactions with the help of adults. Using adequate seating, and trunk support with independent mobility opportunities with equipment (powered mobility), the vestibular system is needed and utilized. As it is used, just like in all children, it can assist the body in practice and use of its righting reactions, its upright postures, and in support of weight bearing.

Primary Means of Mobility

Although Wilma is able to initiate rolling and also attempts to move around on the floor by extending her body and using her head and feet to initiate movement, her means of mobility is quite limited for a young child. Wilma's body is currently unable to support any real method of independent mobility. She really needs powered mobility for independent control, and for continued motor development.

Trying to use manual wheelchairs at this age is still difficult, as pediatric wheelchairs are often not narrow enough nor have they been created with a frame small enough to allow ease of access (arm length and hand grasp) to the wheelrims for a young child. With children who need additional trunk support, the seating required to assist them, consequently prevents them from yet using a manual wheelchair. Children with cerebral palsy, like Wilma, need mobility. When hand function is delayed, and supported seating is needed, powered mobility is the only method by which independent functional mobility can occur.

Wilma is a candidate for powered mobility. With very young children, powered mobility can now be supported without joystick control initially. With joystick control, the child had to control the joystick itself, and its combined functions of speed and direction. However, utilizing digital, alternative access with programmable electronics, and head access (with electronic, zero pressure switches) control, the speed can be pre-set, and controlled, allowing safe use when gaining competence. The young child must then only control direction, which is exactly what she would be doing if ambulatory, managing direction, going where she wanted to go. Adding head access to this, with zero pressure switches, now allows the child to use an upright posture, increased head control, and her eyes are facing the direction she wishes to travel. In short, this will now allow her to develop independent control of mobility, moving through her environment safely at slower speeds, yet with full and efficient control. This same electronic system, can then be programmed, and altered with increased speed, and control, including joystick control, as she gains competence and experience.

Current Seating

Wilma is currently seated in a Quickie KidKart with a planar back and a wedged seat, bilateral trunk supports, a padded head rest, 90 degree footplates with foot straps, a pelvic positioning belt and anterior chest harness. This systems provides her with seating adequate for safe, passive transport for travel in a van or bus as well as adequate support for feeding. However, she is not able to sit fully upright within this system, herself. It , itself, does not encourage independent control, but is rather a stroller used to transport Wilma safely back and forth to school and throughout the community.

When observed within her current seating system, Wilma’s pelvis is most frequently located in a posterior pelvic tilt, her trunk somewhat collapsed, as she leans to one side, her head falling against the headrest.

Current Body Measurements

<u>Seat to shoulder</u>	<u>14 ½</u>
<u>Shoulder to head</u>	<u>6 ½</u>
<u>Shoulder width</u>	<u>9 ½</u>
<u>Chest Width</u>	<u>7 ¾</u>
<u>Chest Depth</u>	<u>7</u>
<u>Hip Width</u>	<u>8 ½</u>
<u>Back of chair to BACK of knee, L</u>	<u>12</u>
<u>Back of chair to BACK of knee, R</u>	<u>12</u>

Current Seating Recommendations

Wilma does need trunk support, but not restraint. It is critical that she be able to use postural alignment, righting and equilibrium reactions, and develop increased pelvic stability through pelvic weight bearing. Consequently, she needs seating which does support her, yet which does not HOLD her still, or cause her to become passive.

Wilma needs a seating system with a **planar back and seat**. Planar systems allow for the most independent control of seating. The back should be **scapular height** (not higher) with **adjustable hardware** which will allow both the **seat and back to be placed with a slight anterior tilt**, to assist her pelvis into a more active posture, when driving. She needs seating with **bilateral trunk supports** which are not holding or surrounding her trunk, but rather offer her trunk with physical cues as to its location and uprightness. She needs front riggings, and footrests which do not place her knees at greater than 90 degrees of flexion, but rather allow her to place her feet “below” her, for a more weight bearing posture. The **front riggings need to include a parallel to floor footplate, placed on removable swingaway footrests** (so that growth and transfers can be supported efficiently which will allow her to place her feet definitely, and in adequate alignment to her hips, so that her pelvis, again, can gain stability. She will need **small bilateral hip guides** to assist her pelvis in remaining in alignment with her lower extremities, but not preventing the pelvis from moving, nor the legs from weight bearing while holding her up. She will need a **padded pelvic positioning belt**, small enough in width with a very small buckle, to offer stability to the pelvis, and safety while traveling, but not too wide to over-hold her.

She will need a **neoprene chest harness** to be used in unfamiliar areas, for additional, safe, trunk support. She will also need **height adjustable, removable desk length padded armrests**, to support her while resting.

Equipment Trial

Equipment Used:

1. **Invacare’s Power Tiger with M6 electronics**
2. **Head array with proximity switches**

The Invacare Powered Tiger was chosen for an equipment trial for several reasons. It has a versatile base and seating system, which can be utilized on a manual Orbit base, in the future, if needed. It also comes with a manual tilt-in-space option which is critical for use in Pennsylvania (with multiple hills, uneven sidewalks, and doors with weather stripping.) Invacare’s electronics are also unique in that they are able to be programmed more directly, and exactly for a young child. (Quickie, Permobil and Quantum Products pediatric chairs all utilize electronics which were developed for adults and are visually display dependent, as well as time sequence dependent when using alternative, digital control. This makes learning more difficult for a young child, as the child must learn a sequence of switch hits to access driving before driving. Invacare’s electronics allow the child to immediately access driving without any need for timing or sequence. This is obviously, more “automatic” for young children, and subsequently, easier for them to gain control of the chair and develop competence more readily over time. Invacare’s electronics are also NOT visually display dependent, meaning they can readily be taught to children who are not readers.)

Means of Activation

To begin with, with children who are not yet fully sitting, it is most important to encourage increased body righting, equilibrium, and stability. This can best occur when the head is used as the initial point of access. The child then is automatically encouraged to remain upright to move. Also, the child's vision is placed to see where the chair is going.

When a very young child is first using her hands, she watches her hands while playing. When using a powered chair, this is also true, however, when watching the hands, it is then difficult to teach the child to watch the environment. However, when using the head, the eyes automatically are moved to the direction the chair is moving.

With young children, especially those who exhibit any hypertonicity, it is critical that not too much coordination of strength, range and control are required. This coordination of skills is difficult for any young child, but particularly difficult for the child with motor problems. Consequently, we used proximity switches, or zero pressure switches, within a headpiece, for Wilma to control the chair. These switches, located within a padded head support, only require skin touch "proximate" to them to activate. They can be touched, but they do not have to be held like a mechanical switch does. In the past, I used mechanical switches as they were all that was available. The child had to locate the switch, press it, and hold it for as long as the direction desired was needed. With proximity switches, the child need only move and stay in the direction needed, no pressure is required. This becomes very automatic, very quickly, and then the mobility is truly used as it should be, to go somewhere to get something. The hands are then, also free to reach objects and use them, once the mobility has been used to get there.

Results of Trial:

Wilma demonstrated at each successive trial, more control of the chair. She was able to move forward, down the hall, stopping and looking at doorways, and then continuing to go.

She was able to manage turning in small areas, stopping and going as needed, interested visually in objects and people nearby. She held her head up, she moved it to stop, and she would resume its correct position to go again.

Wilma was able to move the chair and stop, within these familiar environments. This was so surprising given Wilma's complex body, that we repeated this trial several times, in ensuing months. Each time, Wilma remembered the chair, the movement and each time increased the time spent in the chair, and increased in control of the use of the chair. She loved making it go.

As her grandmother stated at the end of the trials "How soon can we get one for her? Look how well she managed it."

The only difficulty with our equipment trial was taking a pediatric chair that was 14" x 14" size and trying to get seating within it, which was closer to 9" x 9" for Wilma's size.

We must develop seating, and access with the system itself, controlled and programmed through its electronics to allow her to manage the system independently, and for duration. The only time limit today, again, was that the system was not able to be "rigged up" adequately to manage her size, so that she could stay in it longer, and/or go much farther. With adequate seating, she is clearly able to manage mobility.

Powered Chair Recommendations

Wilma needs an **Invacare Powered Tiger with programmable electronics** and its **manual tilt-in-space**. This chair will allow us to create seating for her size, yet allow for growth, as Wilma grows.

With this powered base, she will need **desk length height adjustable armrests**, so that she can approach a table or desk efficiently. She needs **90 degree swingaway footrests**, with **angle adjustable footplates** so that her feet can be adequately placed underneath her knees to support her pelvic stability. Although the angle of the footplate will begin at 90 degrees also, we need these footplates as they also **adjust to forward and rearward**, we will need that adjustment to accommodate her small size.

She needs **flat free inserts in the back 12” tires**, so that she will never have any problems of safety with a “blow-out” but rather can count on these maintenance free, full tires at all times. This chair as all power bases, requires **two gel cell batteries**.

Wilma will be using **Adaptive Switch Labs’ pediatric mini head array with proximity switches** to drive with her head. (This is a padded head support with switches embedded into it, which are run by “skin touch” or in “proximate” position to the head. Wilma only needs to go towards them, and/or touch the headpad, and they then activate the switch closure, as “zero pressure” switches.) For this her chair will require the electronics’ configuration, that comes with a **visual display (and on/off toggle)**. The visual display allows the parents (initially) to read a display to ascertain what mode the chair is in and also provides a visual text format for problems. The display also offers visual information regarding the state of batteries (empty through full). The on/off toggle provided is not large enough for Wilma to manage independently, However, Wilma will also need to turn her chair on and off, so a **separate switch** will be needed for her to control that function independently,.

For control of the chair for entry/exit into a van, or for management when Wilma is not in the chair, the family will need a **remote attendant control**, also available through Adaptive Switch Labs. A **remote programmer** is also a necessary item, so that the therapists and parents can alter the actual parameters of the chair as Wilma’ competence increases. The remote programmer also allows them to adjust the chair if veering occurs without a service call. It also contains various diagnostics which they can check and then call in for service. The service can be managed more cost effectively, as the supplier is then prepared for what ails the chair, and both parties can plan the service accordingly. Often, a service call and cost can be prevented, as an alteration to the chair’s programming can occur, with phone technical support.

Training and Practice

With a powered chair, training will need to take place over time. On the day of delivery an initial lesson will occur. At this time, Wilma and her family will be taught how to manage the chair. Often, this lack of training is why a powered chair is never fully mastered. The chair changes the entire environment of Wilma and her family. ALL of them need to feel safe, secure, and competent in its use.

SPECIFIC EQUIPMENT RECOMMENDATIONS

*****Please note:** *These specific items are the exact items that this person needs. The specifications and brands themselves should **not** be changed. They have been chosen with great care, for durability, ease of use, compatibility, and accessibility and for this individual's own particular needs.*

1. Type of chair

Invacare Power Tiger with Mk6 electronics
w/ manual tilt-in-space option
w/10" x 10" frame width and depth
w/desk length, adjust, height armrests
w/electric teal frame color
w/6" x 2" front casters
w/90 degree swingaway front riggings
w/adjustable, angle flip up footplates
w/easy remote programmer
w/gel cell batteries

From: Invacare Corporation, One Invacare Way, P.O. Box 4028, Elyria OH 44036-2125; 800-333-6900;
www.invacare.com

Local: IQR Rehab

2. Customized Adaptive Seating Insert

- a. Planar back, I-style, scapular height
- b. Padded, planar seat
- c. Bilateral adjustable, swingaway trunk lateral supports
flat pads, adjustable for summer/winter
- d. Bilateral adjustable angle, off set hip guides
- e. Moisture wicking, breathable, easy clean up fabric cover for back and seat
- f. Seat cover removable, or readily cleaned
- g. Quick-release brackets for all hardware, for ease of transport
- h. Head rest Mounting bracket for square tubing (for head array)
- i. Trunk bracket covers "booties" (to prevent any pressure problems as child's arm rests outside of trunk support)
- j. Padded Pelvic positioning belt, 1" wide, dual pull push button style
- k. Dynaform, extra small chest support, for travel

*******Please note, the medical supplier and manufacturer can supply actual cost of these items which must be of the correct size for the patient and to match the chair and its frame. Please contact them for complete cost information.**

From: Adaptive Engineering Labs, PO Box 12930, Mill Creek, WA 98082-0930; 1-800-327-6080

Local: IQR Rehab

3. Switches & Interfaces (if needed)

- a. Pediatric size, padded 3 switch proximity switch head array
- b. Visual display/hardware configuration for mechanical switch control of on/off
- c. Remote attendant control
- d. With any voltage adaptors or cables required
- e. Two yellow TASH buddy buttons

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From: Adaptive Switch Labs, Inc. 125 Spur 191, Suite C, Spicewood, TX 78669; 1-800-626-8698

From: Ablenet Inc, www.ablenetinc.com (Their TASH, switches)

Local: IQR Rehab

4. Delivery Assembling, Instruction, Training

This is another critical piece of this entire chair actually working. This whole chair needs to be assembled and checked, so that each piece fits, and to change a piece if it does not. This system must be SAFE and FIT Wilma adequately. This is the final customization and one of the most important parts of the entire process. Both the therapist and the dealer/vendor need to be involved, working together.

5. Choosing a medical supplier/dealer.

Mrs. Woodstock has chosen, IQR Rehab as a local dealer.

If there are any questions regarding the costs of the chair and the components, please call IQR Rehab first, and/or the manufacturers. The components and equipment have been chosen based on our expertise as therapists dealing with seating and positioning of young children with cerebral palsy. The choice of items is ours,, the delivery and putting together is both the vendor/dealer's and our responsibility. Any cost questions are for the vendor. We have chosen products as to the patients's needs and the match between the features of the product and the needs of the patient, not their cost, but their value. If there are products which have equal characteristics and a price variation is noticeable, cost effectiveness is always considered.

If there are any questions or concerns regarding this report, please do not hesitate to contact us.

Susie, COTA

Date

Melinda, OTR/L

Date

Karen M. Kangas OTR/L nationally certified and state licensed occupational therapist,
Seating and Positioning Specialist, Assistive Technology Specialist, Consultant, Clinical Educator,
6925 Upper Rd, Shamokin, PA 17872; 570-644-1032: email: kmkangas@ptd.net

Physician

Date