

**Statement of Medical Necessity and Equipment Justification**  
**Adaptive Seating with Powered Mobility Assessment**

**PATIENT'S NAME:** Mary Bittlesworth

**AGE:** 28 years old

**MEDICAL DIAGNOSIS:** cerebral palsy, athetosis

**THERAPISTS EVALUATING:** PT , Karen M. Kangas OTR/L

**OTHERS PRESENT:** Mom, PT, RTS

**Identification of Needs**

Mary has been driving her current powered chair for over 14 years. Although this system has been incredibly durable and function for Mary's daily use, it is wearing out, its parts are not longer available, its electronics are no longer replaceable and its parts are irreparable. However, the seating's physical configuration, and the chair's functionality (rear wheeled drive on smaller frame) have worked well for Mary as she is independent in familiar and unfamiliar environments. She is seated in this chair all day, every day, and is only able to move independently with the use of this powered chair.

Mary has a diagnosis of cerebral palsy, athetoid type, quadraparesis. She is non-speaking and non-ambulatory. She is unable to use her hands, and she drives her chair independently and competently with her right foot on a proportional joystick which is mounted on the right footplate. She does utilize a powered tilt-in-space for postural re-positioning, as well as safe traverse up ramps and in and out of transport vehicles. She is able to move "between" driving and the use of her tilt by using a mechanical mode change switch, also mounted upon the right footplate. She has been able to even manage the "standard" toggle on/off switch on the joystick, as well as the toggle for the drive select switch, with her foot.

She is in desperate need of a new powered chair, with adequate seating and supports to continue to support her independent mobility and postural control. She currently attends college full-time. Her chair will not hold out much longer, nor can it be repaired, nor parts replaced. She needs a system which continues to support her posturally, and support her independent control.

**Medical Considerations**

Mary continues to be medically stable at this time. She has had problems with skin integrity, with soreness or redness on the buttock area which began when she was in high school. The use of a powered tilt-in-space seat function and a Roho brand pressure relieving seat cushion has assisted her in maintaining adequate skin health.

**Motor Assessment**

As would be expected with a diagnosis of cerebral palsy, athetoid type, Mary continues to demonstrate fluctuating tone in her extremities, with a noticeable exhibition of increased rotation proximally to distally. Her shoulder girdle appears to be less stable than her pelvic girdle and she has had a history when she was young of some anterior shoulder dislocations in the past.

Her current range of motion in her upper extremities is within functional limits bilaterally with ballistic movements. Her lower extremities also exhibit range within functional limits in hip flexion, hip abduction and hip adduction. However her left knee lacks 23 degrees of

extension and her right knee lacks 18 degrees of extension. Her knees and ankles exhibit full knee flexion and pronation.

When seated on a mat table, her pelvis is able to maintain a neutral posture, and she is able to move into and out of an anterior and posterior tilt.

She does not present any contractures at any of her joints, and she continues to be able to maintain control of motor sequences for independent control of her powered wheelchair, by driving a joystick with her right foot.

Mary easily demonstrates adequate head, neck and trunk control, when seated. However, now that she is an adult and in her chair almost all of the day, she reports that she can feel some tightness in her lower back, and discomfort in her seat, since she cannot “stretch out.” She is also noticing that during the day, she needs to find some way to alter her posture as she can become fatigued, and is worried that her skin integrity may again, become a problem. Mary cannot shift her body while seated without losing control of it, due to her athetosis.

### Current Seating

Mary is seated in an Invacare Action Arrow powered chair with its programmable MKIV electronics and the TARSYS Tilt only tilt-in-space powered seat function. She is seated in a Freedom Designs’ custom planar curved back (20” x 16”) and uses a high profile Roho Quattro (16”W x 18”D) pressure relieving seat cushion. She uses an Otto-bock head support when eating and when being transported.

The front riggings are swingaway and have angled adjustable footplates with heel loops. The armrests are full length and padded. She also uses a padded pelvic positioning belt.

Mary drives with her right foot, and is able to utilize the standard MKIV joystick mounted on the footplate. She is able to utilize the toggle switch located on the front of the joystick to turn the chair on and off also. She utilizes a TASH mechanical switch (“*buddy*” *button*) as the “reset” or “mode” change switch. (This is a switch needed to use the joystick to also manage her powered seat functions and her augmentative communication device as well as using it as a method of access for driving.)

### Seating and Powered Chair Recommendations

This chair is wearing out. It is reaching a stage of “irreparability.” For individuals, like Mary, who manage complete and active days, like all adults, the need for changes in posture is critical. Since she is unable to independently transfer or stand or ambulate, a **powered tilt-in-space** allows weight shifting to occur so that there is no additional pressure on the ischial tuberosities or lower back.

Mary continues to need **programmable electronics** and electronics which has **multiple drives** available. This allows Mary to safely move between indoor and outdoor environments, to manage her augmentative communication device (and computer) as well as control her powered seat functions. If she had electronics on her chair which only had one drive or which had “global” functioning (if any additional device is attached to chair, it appears within all the “drives”) she would have to wait a considerable amount of time to move between her “modes” (between the function of driving, or changing each position or using her communication device) as all of these functions would be in a single “menu” from which she would be forced to follow. With a multiple drive system which does not have “global” functions, she can program each drive with its own menu. For example, she may want one drive dedicated to using her augmentative communication system. This would reassure her that when she was working hard

at college, or on a long assignment, or speaking on the telephone, she would not inadvertently move the chair.

Mary has had her current powered base for over 14 years. Her home, her van usage and all her current environments are accommodated to this frame size and she to its driveability in its rear wheeled configuration. She would be best served if we could re-configure a new system as exactly as we could to her current quite functional one. This would include **Invacare's Formula CG (center of gravity) Tilt only Storm powered base with its currently available Mark 6** programmable electronics.

(We wanted to replicate the configuration which works adequately for Mary, so that no new learning or alterations in her current environments would be necessary. However, it is also important to realize that Invacare's electronics package would have been the program of choice for Hops as the other most commonly utilized powered bases with programmable electronics still function in a "global" mode for their multiple drives. She also cannot manage their joysticks in their current configurations for driving, as they are not configured in a way that her foot can manage. Invacare still manufactures an alternative joystick, which was examined in the equipment trial and which can be obtained. The other manufacturer's electronics, Permobil, Quantum Rehab, Quickie, also are "visual display" dependent. That means, how you move into the modes is determined by "seeing" a display on the joystick. Since Mary uses a standard joystick, but one at her foot, she would not be able to "see" the display. Invacare's electronics are not only the most flexible, but they are the only electronics which not only allow programmability within each drive itself (without a "global" function), but they are also not visual display dependent.)

A **remote programmer** will still be needed, however, especially for her mother, at home, to use any time they need it, when a computer is not available. (The programmer not only allows each drive to be "set up" exactly for the individual, but with Invacare's electronics it also has a diagnostic function. It is able to "diagnose" problems, giving the patient an "error code." This can then be shared with the medical supplier, and service can be better determined. Sometimes a service call and repair is not needed, just adjustments in the programming. However, when maintenance is required, the medical supplier can assist the patient in knowing how long the maintenance will take and how long the chair will be "out of commission" or "needed at the repair shop." This allows both the medical supplier and the patient to utilize time efficiently.)

To use the joystick for driving as well as for managing her powered seat functions and communication device a **separate interface** (auxiliary control interface) is required on the system. This is where the additional **external switch** plugs into to manage the system.

Mary needs to use **Invacare's PSF joystick** with the "turn" knob removed (so that she does not inadvertently alter the speed while driving). She will also need a round TASH **Buddy Button** as her reset/mode change switch mounted to the footplate.

Mary would continue to need a **planar back with bilateral removable, trunk laterals**. She also needs a **clear tray** to assist her in traveling in unfamiliar environments with unfamiliar people (she places her upper extremities under the tray so that they will not "flail" up and hit someone who is unaware of how to approach her without surprising her. Due to her cerebral palsy, she cannot control this "flailing" when accompanied with a startle reflex in unfamiliar situations. ) She also uses the tray to assist her posture when being fed by someone (along with the head support).

She needs **full length waterfall style armrests**. This full length will adequately support the tray and the waterfall style padding prevents Mary's skin from undue pressure when she brings her arms in and under the tray to control her "ballistic" movements. She continues to need **bilateral angle adjustable footplates on swingaway front riggings with a heel loop**.

Mary needs an **Otto-Bock head support** when eating, and for safe travel. However, then it must be removed, as it is in her way, when she is in any other type of environment. It restricts her vision, and her postural control. This headrest needs to be mounted on a **drop-down mount** so that it can be out of the way when not being used, but be in the position needed when Mary is eating or being transported.

Mary continued to need the Roho high profile seat cushion. This seat cushion has been successful in preventing any skin breakdowns, although it has been discovered that the amount of adjustment utilized by the Quattro style is not needed. Simply a **Roho, high profile seat cushion** will now be adequate.

Mary's chair also needs **flat free tires**. This will not only alleviate the need for frequent maintenance, but will also ensure that her safety will not be compromised at any time with a tire "blow out." Her chair will also need **Group 24 batteries** to ensure the availability of power all day, since she is dependent on her chair all day and every day.

Mary will also need a **mount for her communication device**. She uses a Prentke-Romich PathFinder AAC device, and its mount for the Invacare Storm is manufactured by Daedalus Technologies.

#### Current Body Measurements

<u>Seat to shoulder</u>	<u>19"</u>
<u>Shoulder to head</u>	<u>10"</u>
<u>Seat to axilla</u>	<u>15"</u>
<u>Seat pan to elbow</u>	<u>6"</u>
<u>Shoulder width</u>	<u>15"</u>
<u>Chest Width</u>	<u>10"</u>
<u>Hip Width</u>	<u>12"</u>
<u>Back of chair to BACK of knee</u>	<u>18"</u>
<u>Back of chair to FRONT of knee</u>	<u>21"</u>
<u>Top of Knee to bottom of heel</u>	<u>18 1/2"</u>
<u>Bottom of knee to bottom of heel</u>	<u>14 1/2"</u>
<u>Length of foot</u>	<u>10"</u>
<u>Approximate Weight</u>	<u>90 lb.</u>
<u>Approximate Height</u>	<u>5' 4"</u>

## **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's CG Tilt only Storm Base (with rear wheeled drive)  
w/Grape Madness frame color  
w/Mark 6 electronics  
w/PSF joystick  
w/CG Tilt only  
w/full length armrests with waterfall padding  
w/swingaway front riggings with angle adjustable footplates and heel loop  
w/Auxiliary Control Interface  
w/flat free tires  
w/remote programmer  
w/ Group 24 batteries

*From: Invacare Corp., One Invacare Way., Elyria, OH 44035-4190; 800-333-6900*

*Local: DDD RTS, Ms. Joint*

### **2. Customized Adaptive Seating Insert**

- a. Freedom Designs curved planar back (20 x 16)
- b. Roho, high profile seat cushion (16 wide x 18 deep)
- c. Bodypoint padded pelvic positioning belt with push button closure, dual pull
- d. Clear tray
- e. Mount for Communication device
- f. TASH black Buddy Button
- g. Otto-bock head support with drop down mount

*From: Invacare Corp., One Invacare Way., Elyria, OH 44035-4190; 800-333-6900*

*From: Crown Therapeutics, 100 Florida Ave., Belleville, IL 62221-5430; 1-800-851-3449*

*From: Bodypoint Designs, Inc., 704 NE Northlake Way, Seattle, WA 98105; 800-547-5716*

*From: TASH now from Ablenet, Inc., 1081 Tenth Ave. S.E., Minneapolis, MN 55414-1312; 1-800-322-0956*

*From: Daedelus Technologies, Inc., 2491 Vauxhall Place, Richmond, BC, Canada, V6V 1Z5;  
800-561-5570; FAX: 604-244-8443:*

*From: OTTO BOCK Two Carlson Parkway Suite 100, Minneapolis, MN 55447-4467;  
800-328-4058*

*Local: DDD RTS, Ms. Joint*

### **3. 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 Mary 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.

### **4. Choosing a medical supplier/dealer.**

Mary and her mother have chosen DDD RTS as a local dealer, with our support. They have demonstrated over the years, that they provide excellent technical and service support as well as remaining certified in installation and service by having completed the various manufacturers educational courses.

If there are any questions regarding the costs of the chair and the components, please call Ms. Joint first, and/or the manufacturers. We have chosen the components based on our expertise as therapists dealing with seating and positioning of patients with complex needs. The choice of items is ours, the delivery and putting together is both the vendor/supplier's and our responsibility. Any cost questions are for the vendor. We choose products as to the patients's medical 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.**

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Susie Que PT  
Outpatient Therapy Services, Local University Hospital

Date

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Karen M. Kangas OTR/L  
*Occupational Therapist, nationally certified, and state licensed, consultant*  
6925 Upper Road, Shamokin, PA 17872; 570-644-1032; Email: kmkangas@ptd.net

Date

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Physician

Date