

Child's Name: "Blake"
Date of Birth: 8-19-98
Date: 8-20-02

Powered Mobility and Positioning Evaluation

Identification of Medical Need

Blake is a 4 year old child with diagnosis of Spastic Quadriplegia Cerebral Palsy. He is unable to functionally ambulate and must be pushed in a manual base. Due to upper extremity involvement, Blake lacks the motor ability to propel a manual wheelchair. A power wheelchair is the only alternative to provide Blake with a means of developing independence with mobility. A power wheelchair with power tilt, custom driver control, and associated electronic and seating items is being recommended. These components have been justified in the following paragraphs.

Motor Status:

Blake presents with a low tone trunk and high tone extremities. Blake lacks fine graded control of his upper extremities and has significant difficulty with accurate reaching and pointing activities. When appropriately supported, Blake is able to maintain an upright sitting position for short periods to access switches placed at his head. However, Blake becomes quickly fatigued due to his fluctuating tone and needs tilt to allow gravity to assist with his positioning. When he attempts a task with his upper extremities, he also "loses" his trunk and folds over. This being the case, switches placed into a custom configuration at his head (not his hand), along with power tilt are being recommended.

Blake is able to accept weight through his lower extremities, but requires full support to maintain a standing position. His lower extremities "scissor"/adduct when attempting to take steps.

Blake is dependent for most all ADL's including feeding, dressing, and transferring. He is unable to sit independently. Consequently, he requires postural supports in the bathtub and assistance for all bathing activities.

Current Means of Mobility:

Blake is frequently carried by his mother or father. Because Blake is getting older and heavier, this is no longer feasible, especially for longer distances. He has a Snug Seat stroller providing him with dependent mobility. This stroller does not position Blake for function, but instead in a posterior pelvic tilt and open back angle. He now needs a chair with components specifically combined for facilitating independence.

Equipment Trial:

Blake has tried a Power Tiger power wheelchair on several occasions. Because Blake lacks the fine motor coordination and strength, a joystick was unsuccessful. Two different driver controls from Adaptive Switch Labs was tried, one for use with his hands and one for use with his head. Blake struggled to use his hands with accuracy, but was able to access the commands placed at his head. However, he had difficulty remaining in midline with the standard ASL mini head array and would rest his head on a wing for stability. Consequently, a Stealth head array with suboccipital support, swingaway

laterals, and a mini Combo 3 pieced headrest will be used to provide the flexibility and adjustability to place the switches where he needs them to be for successful activations. With this combination, Blake will be able to rest his head for stability and move to access the turning commands. Reset will be included as well.

In the temporary system, Blake's mom has accompanied him on several mobility outings. She quickly learned how the chair operated and has assisted her son learn new skills. Blake gets obviously excited when he gets to move on his own, continuing to activate the switches placed for his use. He will stop to observe and listen to others and continue when he is finished. He especially enjoys being outside and proceeding over grass and mulch at the playground, interacting with his peers.

Transportation of Power Wheelchair:

Blake's mother will need a set of lightweight portable ramps to load and unload the power wheelchair into her vehicle. Due to the weight of the base, a ramp is needed to drive the base into the vehicle. With the ASL On/off modification, the seating frame can be taken off and broken down to fit into the space mom has available in her vehicle. A set of ramps with safety edges by CF Rehab has been included in the itemized list below.

Medical Justification for Equipment:

Invacare Power Base Tiger/Orbit Seat Combo with Mark IV Electronics:

This base frame/seat frame combination has been clinically shown to be durable and adjustable over extended periods. The Power Tiger will accept the electronic and positioning components that Blake requires. The seating system will mount to the Orbit seat frame and will be able to accommodate growth. The Com 3,4 with interface cable will allow Blake to use the same switches he uses for driving for other functions. With the Mark IV electronics, many parameters will be able to be adjusted using the Remote Programmer, including speed, acceleration, sensitivity, torque, and power level. Programming is critical to Blake's success. These all need to be modified ongoing to match Blake's ability level and be changed as he gains skills through experience.

Stealth Power Tilt System:

Because Blake is unable to transfer or shift his weight effectively for comfort and pressure redistribution, he needs a means of accessing a switch to do so. Blake is unable to maintain an upright sitting position for extended periods. When Blake becomes fatigued, gravity can assist with his positioning by tilting back to relax. He will be able to tilt back to continue driving with the least amount of effort, conserving his energy to participate in other learning activities. Changing his position will help achieve adequate circulation and respiration. He will be able to tilt back when his trunk is "collapsed" to rest and expand his diaphragm. When Blake is going over unlevel terrain or down a ramp, changing his tilt position will assist Blake maintain stability over different surfaces and slope angles. Visual orientation can be easily adjusted for Blake to see those that are standing and also those that are sitting on the floor by tilting up and back depending on the situation.

The Power Tilt System comes with mounting hardware, interface box, separate switch for activation, and power source. In order for the Power Tilt to be added onto the Tiger Base, the chair must be ordered with the Tilt in Space option.

Adaptive Switch Labs Components:

Blake needs an alternative to using the standard joystick. A Stealth Head Array with a small Combo, suboccipital, and lateral facial swingaway components with spot pads is being recommended. This headrest will provide the versatility of switch placement for customizing the Driver Control to Blake's abilities. The switches can be placed and tightened down where Blake is successful activating them--consistent sites can be established without the worry of them moving out of alignment because of hardware dilemmas. Each driving command, forward, right, left, and reset will be custom mounted into various pads and wings of the headrest. Reverse will be accessed through the wheelchair electronics using the reset switch. Blake will be able to rest his head without incidental activations and move to activate the driving commands. Proximity switches will be used because no pressure is required for activation.

The cover for electronics will provide a means of mounting the various electronic components neatly and protecting the components from damage. The on/off modification will allow the chair to transition from the Tiger to the Orbit Base. It will also allow the seating frame to be taken off the Tiger for transporting. The chair will not be able to be broken down without this modification, hindering transport options. The Interface Cable will be used in conjunction with the Com 3, 4 module as already mentioned.

Currently, Blake is nonmobile and nonverbal. He is able to respond to yes and no questions. He must rely on others to ask the "right" questions to where he wants and needs to go. By being able to move, he will be able to communicate this with his family and others. To further expand his communicative abilities, Blake will need to scan through various communication options because he lacks accuracy with pointing. With auditory prompts, Blake will be able to hear the options at his head and select using the same switch he uses for driving.

The Ancillary Input Control will be used during the training process as Blake learns to use his head as an extremity. During this time, his mother can assist him in unfamiliar environments and have an overriding stop for safety. Blake will gain skills and become more confident as he is given various opportunities to practice in safe environments at home and out in the community.

Seating System:

Because Blake is unable to maintain a sitting position without support, Blake needs a seating system to provide the stability he needs to participate in functional activities. This seating system will include a solid insert with hardware, cushion with zipper access, back with hardware, lateral supports, hip guides, adductors, hardware spacers, and velcro to attach cushion to solid insert. Growth has been considered and accommodated for both in the component dimensions and in the attaching hardware. Seat and back hardware needs to be depth/height and angle adjustable for placing the cushion and back where Blake needs them to be placed and for growth adjustability. Hip guides and adductors will provide Blake with stability at the pelvis. Lateral trunk supports will assist with midline orientation and be flat in order to guide him back when he leans forward. The 90 degree footrests with angle adjustable footplates will be used to position his lower extremities in the chair. The swingaway headrest mount will allow the headrest to swing out of the way during transfers and click into place when Blake is in

the chair. The chest support and tray will provide anterior trunk and upper extremity support, especially when he is fatigued. If Blake is remaining in his wheelchair, the chest support will also be used during transport. A pelvic belt is required, not only for safety, but for adequate positioning as well.

Recommended Items:

Invacare Products:

- Power Tiger for Orbit Seat
- Orbit Base
- Orbit Seat with custom non flipdown back and rigidizing bar
- Tilt in Space Option
- 90 degree SwingAway Footrests
- Adjustable Angle Flip-Up Footplates
- Calf Strap
- 3” Extension for 90 degree Footrests
- Mark IVA Electronics
- Quad Link Retractable
- Com Module 3, 4 with interface cable (included later)
- Easy Remote Programmer
- Flat Free Tire Inserts

Adaptive Switch Lab Products:

- Stealth Ultra Driver Control Package
 - to include ASL proximity switches mounted in a custom configuration into a Stealth Ultra Headrest, including suboccipital support, dual upper and lower lateral swingaways, and a 3 pieced combo with 151M4 interface box and activation pad for reset.
- Ancillary Speaker Modification
- Ancillary Input Control
- Mounting System (protective cover for electronics)
- On/off Modification—Tiger Base to Orbit Base
- Interface Cable

Stealth Products:

- Power Tilt System for Power Tiger/Orbit combo. with activation pad
- Swingaway Headrest Mount
- Mount for Mark IVA Electronic Component

AES and Sunrise Medical Products:

- seating system to include seat insert with hardware, cushion with zipper access, back with hardware, lateral supports, hip guides, adductors, hardware spacers, and hook and loop strips

Bodypoint Products:

- Pelvic Control Belt

Adaptive Engineering Labs:

- Dynaform Postural Support One Piece

Daedalus Technologies:

- Device Mount with Sidemount Clamp and Adaptor Plate

MK Battery:
Gel Batteries
Therafin
Tray
Attaching Hardware
CF Rehab:
Portable Ramp

Because tone interferes with Blake's ability to sit and use his upper extremities, an alternative driving method has been chosen. Blake will use a Stealth custom configuration headrest with ASL proximity switches added to the headrest to provide the flexibility needed to mount driving commands where he needs them to be for success. Currently, Blake is dependent for ADL's and mobility. The recommended power wheelchair with components justified above will provide Blake with a means to increase his independence. He will be able to interact with others and be an active participant instead of a passive observer.

Blake has difficulty with transitions and new situations and frequently gets worried and notably anxious. These behaviors greatly diminished when he was operating the power wheelchair and felt some control over a situation. His mother observed this as well and commented how "excited" he gets when he gets to be in the power wheelchair.

Blake's mother was actively involved with the equipment trials and the decision making process. Items were discussed with Blake's physical status in mind. Each component was carefully selected and chosen based on features and benefits relevant to Blake. Custom components were included to adequately meet his medical needs. If a less expensive alternative was available, it was always considered if it would not interfere with Blake's ability to operate the system. Please contact me if you have any questions or need further clarification. Thank you.

Christina Mayer, PT
Physical Therapist

Physician Signature

***No substitutions, no deletions of the above prescribed
equipment without physician approval