REASON FOR REFERRAL
Patient was referred for wheelchair clinic.
A comprehensive wheelchair evaluation was requested at this time.

EVALUATION AND TREATMENT PRECAUTIONS
No precautions were indicated per physician referral.

PERTINENT INFORMATION
Information was obtained from caregiver report, chart review, and patient report. *PATIENT NAME* is 12 year old girl who presents to this assessment with her parents who are her primary caregivers. *PATIENT NAME* currently uses a *CURRENT CHAIR NAME* power wheelchair, which is 5 years old and no longer is appropriate for her and does not support *PATIENT NAME* properly. *PATIENT NAME* attends *SCHOOL NAME* and will be entering junior high next year. *PATIENT NAME* is a good student and hopes to continue her education and become a teacher in the future. She is an extremely active young lady who enjoys attending ball games, concerts, and other community activities. *PATIENT NAME* has an Easy Stand stander which she has outgrown and, unfortunately, is extremely difficult for her to use. She requires the assistance of 2 people to transfer her in and out of the stander (with difficulty compromising the safety of *PATIENT NAME* and her caregivers) and is unable to operate the standing feature independently in this standing frame. *PATIENT NAME* is desperately in need of a new power wheelchair which fits her appropriately and will improve her overall independence and which will allow her to experience the therapeutic as well as functional benefits of standing. *PATIENT NAME* lives in a fully accessible home and her family uses a mini-van equipped with a wheelchair ramp for transportation. *PATIENT NAME* is working with *DME SUPPLIER NAME* for her equipment needs.

SUMMARY AND IMPRESSIONS

PATIENT NAME is an extremely bright 12 year old girl who is currently being limited functionally by her lack of appropriate mobility device. She sustained a C5-6 spinal cord injury 5 years ago in an automobile accident. Without power mobility, *PATIENT NAME* would be unable to participate independently in any functional activities and would be bed or chair confined. *PATIENT NAME* is completely non-ambulatory and is unable to propel any type of manual wheelchair functionally, and cannot safely use a power scooter. She has demonstrated safe use of a power wheelchair in the past, and her operational skills are not in question. She is, however, limited functionally by the lack of power seat functions in her current wheelchair (specifically standing). Because *PATIENT NAME* is unable to neither stand nor ambulate, and her Easy Stand stander is too small, difficult to use and not tolerated well, she is unable to gain the medical benefits of standing in her current equipment. By having standing incorporated into her power wheelchair base, *PATIENT NAME* will be able to independently perform her standing program – improving overall compliance and the medical benefits of standing and supporting her functional needs and future educational and vocational goals. Please refer to RESNA's position on wheelchair standers: (*http://www.rstce.pitt.edu/RSTCE_Resources/Resna_position_on_wheelchair_standers.pdf*) for a comprehensive review of these medical and functional benefits.

Therapeutic Problem List

This assessment revealed the following problems:

1. Non-ambulatory requiring wheelchair for functional mobility.

2. Unable to functionally propel any type of manual wheelchair due to decreased endurance, strength, and muscle fatigue requiring power mobility for independence.
3. Abnormal posture requiring adaptive seating system and power seat functions for appropriate positioning.
4. Constipation
5. Decreased range of motion with accompanied spasticity present primarily in lower extremities.

Patient and Family Education

Family verbalized and demonstrated knowledge and understanding of the condition and the family's role in maximizing functional independence.
Written and/or verbal education was provided to the patient and family concerning power mobility, power seat functions (including standing) and funding options.
Family verbalized understanding of education provided.

RECOMMENDATIONS AND PLAN

C400 VS Junior Power Wheelchair

The C400 is a sturdy front-wheel drive power wheelchair base with programmable electronics. It has excellent suspension (including drive wheel suspension) and a compact base for indoor and outdoor maneuverability. It has excellent stability, so it can support a variety of seats and power seat functions.

The VS (Vertical System) is a complete powered seating system with full recline, power tilt, elevating legrests, vertical seat elevation and various ways of achieving the standing position. Standing is accomplished from either a seated, semi-reclined, or fully reclined position. Recline-to-stand allows the body to be extended before all of the weight is transferred onto the feet and mimics standing features on tilt tables or supine standers and reduces buckling at the knees or slipping at the hips. The benefits of standing in a power wheelchair are many:

1) Allows weight bearing multiple times a day, which is essential to reducing osteoporosis, reducing the risk of joint contractures, facilitating normal bone and joint development, reduction of depression and other psycho-social issues.
2) Removes pressure from the scapulae, sacrum, coccyx, and ischial tuberosities
3) Assists with digestion, respiration, and bowel/bladder management.
4) Slowly coming to stand from reclined position, stopping as needed, can reduce the risk of orthostatic hypotension, control abnormal or primitive reflexes, and provide spasticity management
5) Provides improved compliance to standing program by having the standing feature readily available
6) Improves access to toilets, sinks, counters, cabinets when using the stand and drive feature
7) Improves psycho-social status – allowing the user to see eye-to-eye with peers
8) Supine standing requires least amount of head and trunk controls
9) Increases reach and access, and enhances interaction with others
10) Allows user to stand and drive making standing more functional and facilitating independent performance of MRADLs

Power Tilt and Recline

Power tilt and recline allow the optimal independent adjustment of back and hip angle and has multiple medical and functional benefits:

- Offers maximum pressure relief and postural support
- Offers the most functional positions for eating, self care, reaching, and repositioning
- Easiest for bowel/bladder management
- Recline alone can cause sliding forward and increase posterior pelvic tilt; the addition of tilt reduces shear when returning to neutral position from recline.
- Best to address circulatory issues and blood pressure management
- Allows multiple changes in position for more comfortable sleeping
- Best for increasing sitting tolerance and comfort
- Most effective means of reducing edema with elevating legrests
- Most effective means of reducing respiratory distress
- Facilitates therapy interventions
- Provides most options for transfer for one or two assistants, or independently
- Allows for the most comfortable sleeping positions for some
- Tilting before reclining minimizes shearing along the trunk

Power Articulating Elevating Legrest

Power articulating elevating legrests allow legrest elevation and articulation, which maintains leg extension while elevating. They improve circulation and reduce or prevent edema. They maintain stretch and range of motion for short range and can accommodate for range of motion deficits. Power elevating legrests provide change of position due to pain or neuropathy and can facilitate better bowel/bladder management. They can increase clearance to navigate thresholds and slopes by raising up. The powered feature also allows legrests be tucked back more than normal to shorten wheelbase for maneuverability.

Power Adjustable Seat Height

The power adjustable seat height allows vertical adjustment of the seat height by the wheelchair user. Elevation increases reach and allows more independence. It facilitates lateral transfers by allowing a level transfer or transfer from a higher to lower surface, which is gravity-assisted. It also facilitates forward transfer by allowing legs, hips to be more extended, thereby lessening the strain for the user to perform a stand-pivot transfer. Moving/driving while elevated allows better eye contact and allows better positioning for reaching, which can lead to independence in many activities, such as eating, cooking, and hand washing. Vertical rise has psychosocial benefit of eye-to eye contact, and further benefits the user by reducing neck strain. Medications can be kept out of reach of children but remain accessible.

Retractable Joystick Mount
The retractable mount allows the joystick to be moved to the side and back for clearance without rotating. This makes it easier to drive up to tabletops and counters with the joystick pointing forward. It also can facilitate forward transfer by safely moving out to the side. The joystick can also be placed at any angle for better hand access.

R-net Remote Joystick
The R-net Remote Joystick is a proportional upgraded joystick that is separate from the controller box. The programmable electronics have separate drives and switch options available to safely meet different access, environmental, and terrain needs. The LCD screen enables the users to view charge, speed, profiles, etc. R-net also provides for up to eight individually programmable profiles. Mono jack ports will allow specialty switches and controls to be used to operate the on/off and mode function. This is needed when the standard push or toggle buttons are not accessible due to lack of activation strength or limited active range of motion. When using multiple power options or alternative drive controls, this type of upgraded joystick is needed along with the expandable controller.

Expandable Controller
The expandable controller is the power module located in the base of the chair that allows the input device to communicate with the drive motors and gear box. The expandable controller is needed for multiple power options on a base as a non-expandable controller (in the form of an integrated joystick and controller) will not accommodate these features. An expandable controller is used in conjunction with an upgraded joystick (Pilot + or R-net). An expandable controller is also required when any alternate drive controls are being used on a power wheelchair. With R-net, the expandable controller can accommodate up to six different types of drive inputs.

Multiple Seat Function Control Kit
The Multiple Seat Function Control Kit describes the electronic components that allow the user to control two or more of the following actuators from a single interface (e.g., proportional joystick, touchpad, or non-proportional interface): power wheelchair drive, power tilt, power recline, power shear reduction, power leg elevation, power seat elevation, power standing. It includes a function selection switch which allows the user to select the motor that is being controlled and an indicator feature to visually show which function has been selected. This feature is contained both in a separate membrane switch box and integrated into the wheelchair drive interface.

Ergo Back
The Ergo back is an ergonomic contoured backrest, and is a component of the Corpus seating system. Aside from providing comfort, it accommodates unstable trunk position secondary to decreased trunk and upper extremity coordination and postural control. Standard back upholstery and linear seating orthoses are inadequate for postural support due to CLIENT's need for contoured support to achieve symmetrical positioning. Using the provided adjustable lumbar and lateral supports, the trunk is aligned and sustained in a comfortable position. This support increases stability, safety, and potential for increased function in various situations, such as transport in a vehicle or on different environmental terrains. The recommended orthosis simulates the contours of the trunk and provide stability for positioning and can reduce the risk of developing spinal deformities. The backrest is customizable upon ordering, and is further adjustable with the use of postural supports and in conjunction with seat functions.

Ergo Seat Cushion
The Ergo seat cushion is made from various densities of foam and has a removable, easily washable upholstered cover. It provides contours to match the normal anatomic contours of the pelvis to enhance stability, positioning, and comfort.

Height Adjustable Armrests
Height adjustable armrests are necessary to create proper support for the shoulder, elbows and trunk. The adjustable height feature allows for placement of the armrest pads at a height that does not elevate the shoulders and creates trunk support. It also allows a tray to be set at the proper height for optimal function. Height adjustable armrests can facilitate transfer and weight shift and allows repositioning. Seat cushions can raise seat height significantly, and armrests that are too low may cause slouching of the shoulders, head and trunk.

Stand and Drive Legrest
The stand and drive assembly will allow the Combi stander to be driven while in a standing position as it includes additional electronics necessary to allow the wheelchair to be driven positioning this configuration, and an additional set of wheels that are attached beneath the footplates, supporting them and allowing them to roll across the floor as it is driven in a standing position. Driving while standing has multiple benefits: it allows better access and reach, interaction with peers, and it provides the low magnitude, high frequency forces associated with dynamic standing, which have been shown to reduce osteoporosis and decrease spasms.

Headrest, Adjustable/Removable
A contoured adjustable angle headrest is medically necessary to provide posterior and lateral support to the cervical spine and head. This headrest is used for positioning and head control and comes with the necessary hardware to mount the headrest pad to the wheelchair backrest.

Headrest, Removable Hardware
Adjustable hardware is required so that the headrest is properly placed to provide optimal support to CLIENT's head and cervical spine. This headrest is also removable for ease of transfers in and out of the wheelchair and to reduce the wheelchair's overall height when traveling.

Lateral Supports, Swing-Away
Thoracic lateral supports are curved, removable, height adjustable trunk supports for the Ergo back. These are necessary to provide lateral support to the trunk and spine, which will promote midline positioning and prevent falling or leaning to either side. They are needed to support and limit a weak trunk by providing aggressive support to sit in a functional upright position. They also assist in reducing or preventing spinal deformity and are mounted on removable, swingaway hardware for ease of transfers.

Thigh Supports, Short or Long
Thigh or hip supports are multi-position, angle adjustable pads on removable hardware. These pads can be placed at the hips or anywhere along the length of the thigh to align the legs due to high or low tone or windswept deformity, or to prevent excessive abduction and external rotation of the hips, which can contribute to hip dislocation.

Chest Bar

The chest bar provides an additional safety precaution, particularly necessary when standing.

Knee Block Assembly
The knee block assembly is a set of removable anterior knee block pads, which are necessary to properly position the pelvis. They are positioned anterior to the patella and tibia to prevent pelvic rotation. This helps to prevent the development of pelvic and spinal deformation. Anterior knee blocks are also used as a block to prevent posterior pelvic tilt and sliding forward out of the wheelchair seat. This feature comes standard on a standing wheelchair, and is necessary to keep the knees straight to avoid sliding out of the system.

Transfer Handles
Transfer handles are removable handles that can be placed in multiple positions in their removable and height adjustable brackets, which are mounted to the side of the seat frame. They provide a support near the front edge of the seat to facilitate transfer in or out of the wheelchair and for weight shifting.

Upper Extremity Support
A wheelchair tray table is necessary to assist in upper trunk positioning and upper extremity support. It also provides a horizontal surface for working or eating, or to facilitate carrying of essential items. The necessary hardware to mount the tray to the wheelchair frame is angle adjustable for better visual access to the items on the tray, and is removable for transfer.

ASSESSMENT RESULTS

Report of Symptoms
No pain was reported during evaluation.

Medical History
History of present condition: C5-6 Spinal Cord Injury resulting in Tetraplegia
Past Medical History: Constipation, multiple Urinary Tract Infections (UTI), decreased Bone Mineral Density (BMD), At risk for skin breakdown due to absent sensation and inability to complete adequate pressure relief movements
Physicians/clinics involved in care: Dr. _____ (orthopedics), Dr. _____ (Pediatric Rehabilitation), Dr. _____ (Neurology)

See patient's medical record for complete medical history.

Range of Motion
Upper extremity passive range of motion: passively within functional limits
Lower extremity passive range of motion: passively within functional limits except for:
_____
Trunk range of motion:

Strength
Strength was significantly limited in bilateral upper extremities and absent in trunk/lower extremities.

Muscle Tone

(+) Spasticity noted in bilateral lower extremities

Endurance
Muscle fatigue was present throughout.
Endurance was poor - significantly limits activities of daily living and frequent rest breaks are required.
Tolerance to upright was normal in sitting and during standing trial in requested wheelchair.

Sensation
Sensation was absent below level of lesion.

Functional Skills
Head control: within normal limits
Upper extremity function: unable to independently propel any type of manual chair or power scooter for functional distances, uses right upper extremity with adapted joystick knob for access to power mobility
Trunk control and sitting balance: requires maximum support
Lower extremity function: unable to stand nor ambulate
Transfers: with maximum assistance required (2 caregivers required for transfers in/out of separate static stander)
Cognitive function/behavior: alert, age appropriate cognitive skills, and adequate for use of recommended equipment.

_____	_____
Therapist Name	Physician Name
Date Signed: _____	Date Signed: _____