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

PATIENT'S NAME: Harry Houdino
AGE: 57 years old
MEDICAL DIAGNOSIS: Amyotrophic Lateral Sclerosis (ALS)
THERAPIST/S CONSULTING & EVALUATING: Karen M. Kangas OTR/L
OTHERS PRESENT: Wife, RTS, PT
CONSULTATION SITE: patient's home

Identification of Needs

Harry is a 57 year old male diagnosed about 10 years ago with Amyotrophic Lateral Sclerosis (ALS). Harry has been using his current powered chair for about 5 years, but has been losing the ability to manage its driving with a joystick. He was evaluated at Mt. Sinai Clinic in Manhattan for a new chair. He needed a powered base which would remain able to move throughout his home, and he had been told that his Jazzy 1113 was the powered chair with the smallest footprint. Consequently, he presumed he needed the same base to work, but he would need a different method of access for driving. He did not actually try any other types of access, and the new chair was then delivered to him, without any trial or fitting. Although Harry received the new powered wheelchair about 13 months ago, he has never been able to drive it, nor does it fit him adequately.

Due his degenerative disease, it is critical that he remain mobile, and that his seating and mobility remain supported. We will review all the characteristics of his current chair, his new chair, and review Harry's current needs. This process will then support a "feature/match" approach to identifying the characteristics (features) of equipment that Harry will need as they "match" up to his needs and abilities.

Motor Assessment

Range of Motion/ Motor Strength/Voluntary, Isolated, Controlled Movements:

Harry' current body functioning presents as would be expected given his diagnosis. His body exhibits a great deal of weakness and limited function.

Active ROM at this time presents at less than 1/3 of expected range, with some shoulder elevation, rotation, flexion and extension able to be demonstrated. In general the left shoulder has more movement and strength than the right, in fact the left shoulder can shrug independently almost 10 degrees higher than the right. About 45 degrees of supination in the left forearm remains. Harry's lower extremities have less control, but they can demonstrate some active movement at the hips in abduction and adduction. When he is supine, it is reported that he can still lift his hips up a bit to assist in dressing. He reports he can still wiggle his toes, more on the right foot, than on the left. Currently, Harry is wearing a bootie on the right foot, as an ingrown toenail problem is resolving from the right great toe.

Harry does demonstrate the most active control in his head and neck, although some rotation in the neck is limited due to the spinal curvature his trunk is experiencing. A kyphotic type curve in his upper back can be observed, as well as an accompanying asymmetry to the side. The spine appears to be rotated. Active hand and finger function is severely limited. When Harry's hand is propped on his joystick, he can still move it to drive. He can also lean to one

side and then the other, and utilize his skeletal posture to assist in a "push" to re-position, e.g. with arm flexed at elbow and resting on armrest, with hand propped over joystick, Harry can lean to one side, and hike his hips up a bit, pushing against the arm, assisting in a change of position.

Accuracy, Fatigue, Endurance:

Due to the weakness accompanying this disease as well as lack of movement, Harry's endurance is compromised. He describes early morning as difficult, and reports he is functioning better by the afternoon.

He continues to get up every day, and is active in his home office. However, managing the keyboard and mouse on his computer are becoming increasingly difficult. He also feels that his "neck" is also getting weaker. He can see himself "slouching" in his current seating system. He is determined to remain as functionally independent as possible.

Current Seating

Harry is currently seated in a Jazzy 1113 with its standard seating: which is a "captain's seat" (upholstered back and seat, back just up to lower scapulae and reclined to about 105 degrees); full length padded armrests; right side mounted, fixed joystick; and standard one piece, parallel to floor, flip-up footplate. To this seating a Roho air cushion has been added, and an additional back pad, or pillow to the back.

The newer chair (unused) is also a Jazzy 1113, with an Invacare Personal Back (curved, and contoured), an Infinity seat cushion with gel insert, a Whitmyer large, plush headrest, and with bilateral knee guards. The driving control is a small box, not mounted, but loose, to be managed by dropping a finger within it, and moving the finger (like a mouse) to manage controls. The little box interface is not mounted, the visual display is loose. The Personal Back does not fit Harry, it does not accommodate his already rotated spinal curve. The seat is too hard, and also does not support Harry's leg length. The knee guards which are fixed in position, press too hard against the bony prominences of Harry's knees and instead of supporting an upright posture, appear to be trying to counter act the posterior pelvic tilt, Harry' body collapses into, within this seating. The head support is too large, and located too far away from Harry' head. He must reach back to reach it, yet it obstructs his vision when he is upright. Since it is impossible to drive, and uncomfortable to sit in, this system has not been utilized at all.

Current Seating Recommendations

Harry is very slender, and, consequently, his spine, hips, knees , elbows, scapulae are all more exposed, and less covered with tissue. It is critical that his seating prevents any skin breakdown. It is also important, that Harry' body be supported in an upright posture, to support full lung expansion. Yet, it is also important that Harry' trunk be able to move, and his body change positions throughout the day. Harry is a candidate for powered seat functions. These should include a powered tilt-in-space function, powered recline, and powered seat elevation. (He would also benefit from powered elevating legrests, however, they cannot be accommodated on this base, and still fit within his current living environment.)

A **powered tilt-in-space** (tilt-in-space option is where the back and seat remain in a fixed relationship to each other, while the entire system can be moved in space up to 35-45 degrees posteriorly, and/or 5-10 degrees anteriorly) allows the patient to change his orientation in space, and change and alter pressure, providing a true weight shift. As the seating system is tilted slightly, the head and neck can be supported, with the seating system tilted more posteriorly, pressure can be removed from the ischial tuberosities (the primary site of pressure problems) and

placed on the back more fully. This change in posture supports increased circulation, provides pressure relief to the bony prominences of the pelvis, and allows the back to have more support.

Powered recline (where the back moves away from the seat, at the hip, up to 160 degrees) allows the patients' hip angles to open. This not only provides pressure relief, also to the body, but more importantly, as the hip angles open, the trunk's internal organs are offered increased room, and can re-align, just as the rest of us do, when we move into a standing posture. This opening at the hips, and the reclining posture, are critical for full lung expansion, support of reduction of constipation, prevention of skin, muscle and bony contractures of the hips, as well as an aid to increased circulation, as the body is moved, and moved again. At this time, Harry is already seated with a "fixed" recline, or more opening at the hip, which accommodates the curvature of his spine, yet allows his to continue to use head control. This "fixed" position, limits his mobility throughout the day, and any "fixed" positioning is concern for skin breakdown. With a powered recline, he can move himself, even ever so slightly, preventing problems, and supporting himself in an upright posture throughout the day, still utilizing head control.

Powered seat elevation is critical for increased, safe transfers. Injury to the caregiver and/or the patient while being transferred almost always occurs at the point of lifting up from the seat. With seat elevation, the seat can be raised, so that the caregiver does not have to "reach" down, and the transfer can happen at a more adequate height, with the patient being able to support a "stand-pivot" position when able. The seat elevation also increases the patient's range of visual orientation. This is critical when managing using a powered chair within the environment, as the patient can alter the position to see any obstacles, and then plan to move.

Movement (mobility) is critical to human health. The immobility imposed upon patients due to their degenerative disease or due to weakness is more frequently a cause of complications to everyday, autonomic functions than the disease can be. Mobility cannot be viewed as simply moving through an environment, but also must be supported within the seating system, throughout the day. Patients need both mobility within their environments (independently moving from one place to another) and mobility within their mobility systems (moving the body while seated).

With powered seat functions, not only can each alleviate critical immobility, but in combination, the patient can actually provide himself with range of motion. With a powered recline, the back can be moved forward and back, not only stretching the hip extensors, but also the back. Reclining can offer increased range to the trunk, realignment to the internal organs and offers space to the all the lower internal organs. Tilt and recline, can together offer shorter rests, with a change in posture, which will prevent skin breakdown, support increased circulation, and support increased endurance, reducing the fatigue of trying to manage a single position.

Harry also needs an adequate seat and back cushion. He has already benefitted from being seated on a Roho pressure relief cushion, and cannot tolerate the too firm newer seat cushion. He needs not only a **Roho high profile seat cushion, but would also benefit from a Roho back cushion**. The Roho air cushion, allows support, yet moisture wicking, and allows mobility to still occur. Harry's spine does exhibit a curvature, and he is quite slender. However, attempting to develop a custom contour, can overly control the spine, altering any active movement still available. With a Roho back cushion, the cushion itself can be inflated to "match" up to Harry spine. Yet, because it is not a firm surface, mobility can be supported, yet pressure relief provided. (When a patient has a changing spine, especially when bony prominences need support, often a contoured back is developed. However, the contouring itself

can be restrictive in nature, and demand the patient to remain in a single position. With the Roho back cushion, since it is made up of multiple tubes of air, it can conform to the patient's body by its level of inflation, and its ability to contour to the body's musculo-skeletal system. In fact, it is almost identical to the seat cushion, except it is ordered with grommets on the top two corners, and a longer "rope" which is then placed around the back push handles of the seating system. For Harry, the Roho back cushion will lay on top of the foam which standardly comes on the powered seat systems. (We would've needed to have added something as this foam, although a "memory" type of foam, is only 1" thick, and quite firm. Patients with sensation, need a softer surface against their body, to tolerate a seated position all day.)

Right now, Harry's full length armrests fit him exactly. They provide him with adequate support, yet with enough foam to prevent any pressure. He needs this same style and configuration of armrest pads on his newer seating system.

Current Body Measurements

Seat to shoulder 19 1/2"
Shoulder to head 11"
Seat to axilla 14"
Shoulder width 14"
Shoulder to elbow 15"
Seat to elbow 6"
Length of forearm-to wrist:10 1/2"; including hand/fingers: 18"

Chest Width 11"
Chest Depth 6"
Hip Width 15 1/2"
Back of chair to BACK of knee, L 21"
Back of chair to BACK of knee, R 21"

Top of Knee to bottom of heel, L 23 1/2"
Bottom of knee to bottom of heel, L 19 1/2"
Top of knee to bottom of heel, R 22 1/2"
Bottom of knee to bottom of heel, R 18 1/2"

Approximate Weight 115 lbs.
Approximate Height 5' 10"

Equipment Trial

Equipment Used

Head array with proximity head switches, in small padded head rest
w/Visual Display of Omni+ Electronics

Results of Trial:

We completed an equipment trial with a head array system as the drive control. This is a padded headrest within which reside proximity switches (switches which are activated by skin touch.) The chair must have programmable electronics to support this system (which the new

chair did have), and we were able to add a head array to the newer chair for Harry to drive with. Although the seating was obviously ill fitting and inadequate, Harry was able to drive the chair around his home with the head array. He was pleasantly surprised at how efficiently he could manage the system. (Electronic switches are zero pressure, and since they are located within the padding of a head support, they are readily and efficiently accessed.) The visual display was not mounted adequately, and was falling over to one side. An adequate visual display mount is critical to use of alternative access. The patient must be able to "read" the display to manage reverse as well as driving speeds. Harry also needs an additional interface box, an auxiliary control module, to allow him to utilize this driving controls to access his computer as mouse emulation.

Powered Chair Recommendations

Harry has a new powered chair which he has never been able to use (see beginning of report.) The Omni+ electronics are already available on this chair (these are the electronics which allow alternative access to driving with a joystick) which includes a visual display, although inadequately mounted.

Harry will need on this powered base, **all the powered seat functions discussed in the seating recommendations: powered tilt-in-space, powered recline, and powered seat elevation.**

He also needs a **new mounting system for the visual display.** His is totally inadequate, it falls to one side, and sticks way out, not allowing the chair to get through doorways, nor does it allow Harry to see the display. Stealth Products makes a mounting system which can be adjusted specifically for the patient. I also think it may be able to be placed on the armrests in a way which can also support his hand (like how he currently positions his hand on the joystick now).

He needs the **mini head array (with 3 proximity switches)** to drive, and he needs at attached single fiber optic switch, mounted on the head array, to function as the mode change/reset switch. When a patient drives with 3 head switches, the three switches control left, forward and right. To perform a diagonal, two switches are hit at once, but this does not give the patient, reverse. To perform that, the electronics are programmed for "rim control." This, essentially, replicates a joystick's functioning of 360 degrees of movement by splitting the 360 to 180 degrees of movement, 180 degrees of "forward" and 180 degrees of "reverse." Consequently, when the patient wants to drive in reverse, the patient activates the reset/mode change switch, and the driving controls will "toggle" between forward and reverse. The **mode change/reset switch** also allows the patient to control the menu within the visual display. This allows the patient to set speeds, change speeds, and a few other driving parameters, but most importantly, it also allows the patient to change "modes" so that he can move out of driving, and manage the powered seat functions with the same driving controls. For Harry, since his hand function is becoming more limited, and he can drive well with the head array, **a fiber optic switch can be mounted onto the head array within flexible tubing to function as the reset/mode change switch**. This will be housed in a small tube, which can then be placed near Harry' cheek or chin. He must only touch it to cause a "mode" change, as the fiber optic switch is also "zero pressure." It is the only available electronic switch which can be attached to the head array, and be placed so near the face, without constricting movement, or obstruct the view. The tube housing the fiber optic switch can be easily moved out of the way for transfers.

This mode change/reset switch is a critical part of the driving and chair's controls. Harry needs to be able to manage all his chair's controls (powered seat functions, driving, and auxiliary access) from the same method of access.

Harry also needs **an auxiliary control interface box.** This interface will allow him to utilize his head switches for controlling his computer's mouse, (mouse emulation) or if needed in the future, to manage an augmentative communication device.

Harry needs **a wireless Mouse emulator,** 3 switch system, to allow him to drive up to his computer, and then utilize his head switches for control of the mouse for use on his computer. This would help him now, and continue to help him as his disease progresses. The Mouse emulator does not require any special software, but rather comes with a USB cable which plugs into an open USB port on any computer. Then, the transmitter is attached to Harry' chair so that when he approaches his computer the transmitter can then "see" the receiver attached to the Mouse emulator itself. Harry needs to continue to be able to manage his own records, finances, and all other daily routines he can, via his computer access.

Harry also needs **a remote programmer** With the Omni+ electronics, both the visual display, and the remote programmer are needed to allow for customization of controls of the chair's performance for the patient. This is critical for every patient who utilizes alternative access, but is particularly necessary for any patient with a diagnosis of a degenerative, changing disease, like ALS. The programmability of these electronics allows the chair to be set up to "match" the skills of the patient, and the needs to the patient within his environment.

Harry's wife needs an **attendant control.** This is not so that she can drive the chair for him, but rather that she can move the chair after a transfer in the evening, and any other time when he is no longer in the chair. Attendant control is critical when a joystick is not available. Harry lives in small quarters (within each room), his wife needs to move the chair, and this chair is not an easy chair to manage in "free wheeling." Powered chairs are heavy and unwieldy, electronic control is needed for the caregivers, too.

Other Equipment and/or Trials Needed

Harry needs increased control of various mechanisms within his environment or **electronic aids to daily living,** in the past referred to as "environmental control." He appears to me, to be a candidate for a voice activated system, which can work all the things he needs to manage adequately. With the electronic controls, it also needs to be a system he could manage from his bed, not just from his chair and once he was at the computer. He needs an equipment trial with TASH's Sicare system. This is a voice activated EADL which can manage phone calls, door openers, and any electronic equipment in the patient's environment which needs to be managed. It can also be managed from any position, too (bed, chair, various rooms, etc.) I am concerned that Harry cannot answer the phone at this time. He reported that he has tried some other alternative systems, but they have not worked for him. He needs to be able to mange the phone readily, for emergency reasons, obviously, but he also needs to maintain control of any electronic device within his home, since his hands no longer work. This system can manage them all, it will serve him adequately immediately, and in the future, as his disease progresses. This system is often not considered early enough with patients with ALS. It does require some voice training, and use, to manage it well. If the patient's body is changing, it is not a time to be "learning" new skills. However, if a system can be put in place, which can continue to work for the patient as the disease progresses, then the patient can continue to manage as much of his environment around him, including a hospital bed, the phone, an intercom, correspondence with

the physician, and other activities. Harry is the perfect candidate for a voice activated system. However, he needs to actually have an equipment trial within his home. TASH, the manufacturer who makes the Sicare system will provide that equipment trial for him. They can also bring other EADL's (electronic aids to daily living) to try with him also. I have encouraged Harry, himself, to contact them directly. I have talked with their local representative already, but I do not have to be present for the trial.

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. Customized Adaptive Seating Needed

a. Powered seat functions, on lowest seat to floor height available for Jazzy 1113
w/Powered tilt-in-space and powered Recline
w/Precline module (up to 8 degrees)
w/Powered Elevating seat module
w/ 18" seat width & 19" seat depth
w/ 19" curved rigid back and back cushion
w/Reclining adjustable height armrest
w/Multi-function electronics
From: Motion Concepts, 700 Ensminger Rd., Suite 112, Tonawanda, NY 14150, 888-433-6818

b. Roho seat cushion
High profile, single valve for seat cushion

c Roho back cushion , 18" tall by 16" wide .
#1R910C, modified with additional rope and grommets placed in two upper corners (to hang over back push handles)
From: Crown Therapeutics, 100 Florida Ave., Belleville, IL 62221-5430; 1-800-851-3449

d. Full length PRIDE Armrest pads
From: Quantum Rehab., 182 Susquehanna Ave., Exeter, PA 18634; 800-800-8586
Local: Mr. Smith, AAA Home Healthcare

2. Switches & Interfaces, and mountings

a. Mini Head Array, (Penny & Giles) to be configured with fiber optic reset/mode change switch, mounted on head support
#PASL PG

b. Fiber Optic mode change/reset switch (Penny & Giles)
#ASL 203-3 fiber optic switch
#ASL-609, flex tube switch mount to head array

c. Visual display Mount
#ASL-618PG

d. Attendant control
#ASL520BG
From: Adaptive Switch Labs, Inc., 125 Spur 191, Suite C, Spicewood, TX 78669; 800-626-8698

e. Auxiliary Control Interface (Penny & Giles)

f. Remote programmer (Penny & Giles), #PG-PP1
From: Quantum Rehab, Inc., 182 Susquehanna Ave., Exeter, PA 18634; 800-800-8586

g. Wireless Mouse Emulator System (Penny & Giles) with USB cable
#ASL 550
From: Adaptive Switch Labs, Inc., 125 Spur 191, Suite C, Spicewood, TX 78669; 800-626-8698
******h. TASH's Sicare ECU system***
Please note: This is a recommendation for equipment trial, an equipment trial needs to be arranged within the home with the patient, to determine if this system will adequately serve this patient's needs.
Voice Activated system for electronic aid to daily living within Harry's home
From: Ablene, Inc., www.ablenetinc.com (A TASH product)
Local: Mr. Smith, AAA Home Healthcare

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 Harry 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 with the patient directly.

4. Choosing a medical supplier/dealer.

Mr. Houdino has chosen AAA Home Health Care as a local dealer. Their representative, Mr. Smit has had a great deal of experience in seating,positioning, and powered mobility. They have demonstrated to me 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 Mr. Smith first, and/or the manufacturers. The chair's components have been chosen based on the therapists' expertise dealing with seating and positioning of complicated patients. The choice of items is the therapists, the delivery and putting together is both the vendor/dealer's and the therapists' responsibility. Any cost questions are for the vendor. Products are chosen with regard to the patient's needs and medical diagnosis and prognosis. A match is then made 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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Physician Date