Client: John Doe
D.O.B.: 10/26/1965

Diagnosis: Spinal Cord Injury

Sample Letter of Medical Necessity to replace existing equipment

Dear Medical Reviewer,

John Doe is a 45y/o male with Spinal Cord Injury. His condition is characterized by _____.

John Doe is unable to ambulate to accomplish his mobility related Activities of Daily Living (ADL's). He does not have the ability to stand to accomplish these activities. He is unable to use any ambulatory assistive device to accomplish these activities safely. He is able to use a manual wheelchair sufficiently to accomplish these types of tasks while in a seated position. A Marvel Wheelchair MV01-50000-00 can be used for these activities.

I am writing this letter to provide documentation to show medical necessity for the following items.

Ultra-Light Weight Wheelchair
The Marvel Wheelchair MV01-50000-00 is an ultra-light weight chair comparable in weight to the lightest frames on the market, but with the added benefits of independent front and rear suspension, adjustability, modularity, and a lifetime warranty on the frame. The ultra-light weight frame is easier to self-propel which is a function of the lower weight and suspension technology employed. The ability to remove the Caster Wing of the Marvel Wheelchair as well as the rear wheels also makes it much easier to lift into and out of a vehicle when transferring to and from a vehicle.

(As the photo above shows, the Marvel Wheelchair with the caster wing in the storage position is lightweight and allows for easy storage.)

Adjustability: Adjustable Width

Fitting the patient to the appropriate width in his chair is critical to his long term abilities to accomplish mobility related Activities of Daily Living (ADL) in an injury free manner.

> ***"Seat width that is too wide can create a pelvic obliquity (one side of the pelvic higher than the other) and limit accessibility as the overall chair width increases with seat width. Seat width that is too narrow can create rotational deformities, cause discomfort, and increase pressure on the lateral thighs (trochanters) or lower legs." (Chris Maurer, MPT, ATP, "Proper fit of a wheelchair", Assistivetech.net, Jan 2007)***

The challenge with conventional chairs is that once a patient is fit to his ideal wheelchair width, he must maintain his weight until eligible for his next wheelchair under his insurance plan (typically five plus years). It would be reasonable to assume that most people will experience weight fluctuations over a five-year period. It is both reasonable and predictable to expect that someone with a spinal cord injury to experience muscle atrophy, which also has a profound effect on the size of a wheelchair that will allow for healthy use of the device. Having a Marvel Wheelchair with its unique width adjustment capability (infinite width adjustability from 12-16 or 14-18 inches) is required for the patient's long term health.

Adjustability: Adjustable Center of Gravity

The wheelchair setup will influence the propulsion technique and ultimately the amount of resistance or reactive force/stress that is translated back to the patient's shoulder joint.

> ***"The more rearward the seat position is in relation to the wheel (center of gravity), the less rolling resistance and the more efficiency with propulsion the wheelchair will have. A more rearward seat positioning (center of gravity) will promote a long and smooth stroke that limits high forces and the rate of loading on the pushrim that you will see with a short and abrupt "pumping"-style stroke. This is, of course, true only if the wheelchair user has adequate range of motion in his or her shoulder joint. A rearward seat position basically has less drag because you are not loading the front casters as much, therefore not allowing a "plowing" effect. The tradeoff is stability. The more rearward the seat position is, the less stable the wheelchair will be and the more likely it will tip backward. For experienced users with a very low level of injury, this is not typically a problem; however, more inexperienced users or those with a higher level of injury may not have the seat set back as much or may need to use antitippers. ("Kevin, Lockette, PT, "Injury Prevention for Wheelchair Users", Physical Therapy Products, April-May 2005.)***

Only with the Marvel Wheelchair do you have the ability to make minute changes on a continual basis to adjust the patient's chair to account for his changing balance, strength, and experience, thus minimizing the wear and tear on his shoulders and upper body.

Manual Reclining Backrest

This feature allows the back support of the wheelchair to be adjusted. This gives the patient control to create more comfortable positions throughout the day reducing muscle aches and spasticity, and greatly improving his quality of life. Consider driving all day in your car without the ability to change the recline position on your car seat. Small changes have big benefits on comfort, muscle aches, and spasticity.

Carbon Fiber Backrest

This carbon fiber backrest replaces industry standard fabric upholstery and is required to provide sufficient posterior back support to promote erect posture while propelling his Marvel Wheelchair. Standard upholstery tends to sag particularly over time, and does not provide adequate support. Standard upholstery causes patients to sit in a rounded posture, reduces upper extremity efficiency and increases strain on their upper quadrant.

> ***"Most rotator cuff injuries are due to muscle imbalances of the shoulder; Wheelchair users are even more susceptible to muscle imbalance. Shoulder strength and muscle length/range-of-motion imbalance can cause impingement of the soft-tissue structures of the acromiohumeral space. Nearly every motion and all repetitive motions are anterior, working such areas as the pectorals, shoulder internal rotators, and anterior deltoid. These anterior muscles become tight and shortened, while the upper back muscles become weak and elongated. You can see these imbalances in the postures long term wheelchair users. A typical posture is rounded shoulders with mild thoracic kyphosis and forward head. This posture is even more accentuated by a non-supportive wheelchair back that is stretched out, accommodating this poor posture." (Kevin Lockette, PT, "Injury Prevention for Wheelchair Users", Physical Therapy Products, April-May 2005.)***

Quick Release Axle Pins for Rear Wheels

Quick release axle pins allow the wheel to be removed after transfers and for transport. The chair will not be manageable for the patient to accomplish his mobility related ADL's because of the weight of the chair with the wheels in place. This important component to the wheelchair ensures that the chair can be used in a variety of environments as the patient requires to remain independent.

Tempest Everyday Wheels

Light weight wheels are required for efficiency with propulsion and decreased energy expenditure during self propulsion. The reduced rolling resistance is needed: (a) because of decreased strength, range of motion, chronic pain or overuse of the upper extremity; (b) to allow the client to use the wheelchair everyday, all day long; (c) to increase the maneuverability of the wheelchair over carpeted areas within the home; (d) to maintain the lightest system possible.

Solid Seat Panel

A solid seat panel is required to provide a surface for the seat cushion to rest on.

> ***"Sling seats eventually lead to asymmetrical seating invites and/or aggravates spinal cord and pelvic deformities."***
> ***(J.G. Webster, Prevention of Pressure Sores: Engineering and Clinical Aspects. Pg 78)***

Independent Rear & Front Suspension System

> ***The rear shock absorber reduces the vibration, bouncing and stress associated with the patient's daily use of his wheelchair. Reductions in vibrations and and bouncing have been linked to the reduction of pain, spasticity and fatigue levels which normally would interrupt daily activities.***
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> ***Setsuo Maeda , Makoto Futatsuka, Jiro Yonesaki and Maki Ikeda, "Relationship between questionnaire survey results of vibration complaints of wheelchair users and vibration transmissibility of manual wheelchair" , Environmental Health and Preventive Medicine, July 2003. www.springerlink.com/content/b073141180t7v521/***
>
> ***Gerald Weisman, M.S. and Dryver R. Huston, Ph.D., Low back pain and whole body vibration exposure for wheelchair users, Vermont Rehabilitation Engineering Research Center, University of Vermont Burlington, Vermont RESNA Study, June 1995.***

Other manufacturer's have tried to make suspension work, with varying degrees of success. Marvel Wheelchairs has achieved a new level, using bicycle technology, and applying it to the wheelchair in a unique way. Marvel Wheelchairs incorporated a sophisticated and proven mountain bike air shock technology, and added some of its own specifications so that it fits the wheelchair geometry just right – it has adjustable damp and rebound, as well as being adjustable for the exact patient weight (e.g. 127lbs is set to 127 psi of pressure). No other wheelchair manufacturer or after-market company offers a suspension system that is specifically adjustable to patient weight. In addition, Marvel Wheelchairs suspends the seat, not the wheels and frame – a big concern with suspension in the past has been that as the suspension engages, the front casters are pulled out of alignment. Marvel Wheelchairs overcomes this

challenge by having a pivot point under the front of the seat (using the same technology as a bottom bracket from a bicycle), resulting in the seating platform being suspended independently of the frame. This is a big advantage for the patient. What this means for the patient is that when the Marvel Wheelchair's shock engages, nothing happens to the relationship of the caster wheels to the ground, in fact, nothing happens to either set of wheels, because,as mentioned above, the front casters and back wheels and frame are independent from the seating platform.

Marvel Wheelchairs also added a bushing to provide independent front suspension. This dampens vibrations, keeping all four wheels grounded over most terrain, and dramatically increases the durability of the wheelchair. This technology effectively provides suspension to the front of the wheelchair without the negative effect of causing it to pitch forward, a common complaint of users of wheelchairs equipped with conventional hinged caster fork suspension systems.

Removable Caster Wing
The caster wing is completely removable with a quick release axle pin. This allows the patient to easily load and unload his chair into his car with minimal strain on his upper body and back. This makes the load far less than any other chair on the market regarding weight for loading.

Pneumatic Tires
These tires are required equipment on this wheelchair. The chair cannot be used without these tires.

Rear Anti-tippers
The anti-tippers are necessary to keep the wheelchair from tipping over backwards during transfers and when ascending ramps and inclines.

Scissor Locks for Manual Wheelchair
These wheel locks are required to prevent the chair from moving during transfers or when on an uneven surface. They are a basic safety item for the wheelchair and are medically necessary to prevent falls from the wheelchair and prevent injury.

Modularity
The Marvel Wheelchair is designed for easy upgrades and is fully modular. If the patient desires a different backrest or different seat panel or new shock, they are easy to acquire and retrofit without having to purchase a new chair. This allows the rider to access a chair that will fit his needs and allow him to take advantage of the latest technology breakthroughs as they happen, without purchasing another chair.

The above items have been determined to be medically necessary for John Doe

and are in no way for his convenience. Thank you in advance for your anticipated approval of this much needed item for John Doe. Please feel free to call me if you have any questions.

Sincerely,

_____
Jane Doe, PT/OT

I have read and agree with the justification of medical necessity for the above described durable medical equipment.

_____
Physician Name (print)

_____
Physician Signature

_____
Date