

**CLINICAL PRACTICE RECOMMENDATIONS FOR
MOTORIZED WHEELED MOBILITY DEVICES:
SCOOTERS, PUSH-RIM-ACTIVATED POWER-ASSIST WHEELCHAIRS,
POWER WHEELCHAIRS, AND POWER WHEELCHAIRS WITH ENHANCED
FUNCTION**

I. PURPOSE: The purpose of these clinical practice recommendations is to provide physicians, therapists and other authorized personnel with functional criteria for prescribing motorized wheeled mobility devices.

II. BACKGROUND

The Under Secretary for Health directed VHA's Prosthetic and Sensory Aids Service Strategic Healthcare Group to establish a Prosthetic Clinical Management Program (PCMP). The objectives were to coordinate the development of clinical practice recommendations for prosthetic prescription practices and contracting opportunities to assure technology uniformity and ease of access to prosthetic prescriptions and patient care that will lead to valid outcome measures and analysis for research purposes.

At the time of the publication of these draft clinical recommendations, there existed no agreed upon standard objective parameters that adequately addressed the multiplicity of potential clinical scenarios that are likely to be presented to a wheeled mobility clinic. Therefore, the following recommendations contain few specific values to guide clinicians. Instead, they describe the process of evaluation and the principles of eligibility.

Each veteran is entitled to an individualized evaluation. The clinician will take into account the veteran's medical diagnoses, prognosis, functional abilities, limitations, goals, and ambitions. Evaluation of mobility will assess musculoskeletal, neuromuscular, pulmonary, and cardiovascular capacities and response, effort, quality and speed of gait (or manual wheelchair propulsion), and overall function. Power mobility is indicated when the veteran demonstrates a clear functional need that cannot or is not likely to be met by conventional rehabilitation or medical interventions and is not otherwise contraindicated. The VA supports the dispensation of power mobility to allow the veteran to access medical care and to accomplish necessary tasks of daily living in ordinary home and community environments such as paved surfaces and mild terrains (low grass, packed sand and gravel, etc.). While recreational needs may be taken into consideration, the VA does not support the dispensation of power mobility solely for recreational purposes.

III. DEFINITIONS

Scooters: Motorized devices guided by a tiller with limited seat modification capabilities. These devices have larger turning radii and are most suited for outdoor use.

Motorized Wheelchairs: Motorized devices driven by a joystick or alternative input device. These typically have 4 to 6 wheels on the ground and ability to accommodate a variety to seating needs. The turning radii in these devices are often suitable for indoor environments.

Pushrim-Activated Power-Assist Wheelchairs (PAPAW): Pushrim-activated power-assist wheelchairs require users to stroke the handrims to activate small, lightweight motors, which then drive the wheels for a brief period of time (seconds). To keep a PAPAW moving, users must continue to stroke the handrims as they would if they were propelling standard manual wheelchairs.

Enhanced Function Power Wheelchairs: For the purposes of this document, the term “enhanced function power wheelchair” refers to power wheelchairs with augmented capacities such as the ability to change the user’s vertical position in space (elevate, go low to ground), stand, access multiple inhospitable terrains, and/or climb stairs.

IV. INDICATIONS/CONTRAINDICATIONS

General indications

A. Inability or limited ability to propel a manual wheelchair or walk despite compliance to prescribed standard medical and rehabilitative interventions due to one or more of the following:

Limited mobility due to a documented medical condition.
Typical examples include:

1. Cardiovascular disease
2. Pulmonary disease
3. Neurological disorder (ex. stroke, spinal cord injury, multiple sclerosis, Guillain Barre Syndrome)
4. Musculoskeletal disorders (e.g. muscular dystrophies, rheumatoid and other arthritides)

B. Limited upper and lower limb function:

1. Symptoms or signs of significant upper limb dysfunction that are likely be worsened with use of a manual chair (e.g. long-term wheelchair user with rotator cuff disease or carpal tunnel syndrome, etc.)

The patient has progressive disease that is likely to cause limitation such as the above (Items A.1 - A.4) within a year.

2. All of the following additional criteria must be met:

a. Physical limitations must be objectively demonstrated.

b. Examples of objective measures include tests of walking or wheeling that include the parameters time, distance, and quality of movement, measurement of physiologic parameters such as oxygen saturation, heart rate and rhythm, respiratory rate, strength and range of motion of the upper and lower limbs and pain. Non-specific chronic pain or fatigue secondary to deconditioning are not typical indications for permanent use of power mobility devices.

c. Adequate functional mobility without the device cannot be achieved by standard medical or rehabilitative treatments.

d. Use of manual wheelchair is prohibitive due to the energy expenditures required to meet frequent, unavoidable environmental demands (i.e. long distances, inhospitable environments such as hills, sand, gravel, and inclines) OR use of manual wheelchair is prohibitive due to frequent, unavoidable time challenges (e.g. veteran cannot propel chair quickly enough to complete tasks in a timely fashion) Or use of a manual wheelchair will exacerbate a musculoskeletal or neurological impairment as documented by an appropriate medical professional.

e. Patient has adequate judgment and cognitive abilities, vision, and motor coordination for safe use of a motorized device. Trial of the device in the environment intended for use, or in an environment that simulates the intended environment is encouraged.

f. Home/Community environment is compatible, or could be reasonably modified to support the use of motorized device.

g. A method for transporting the device to the intended environments of use have been identified.

General Contraindications

A. Inadequate cognitive function, judgment, vision, motor coordination or the presence of a sufficiently serious spatial neglect, to preclude with reasonable certainty, safe operation of the device.

B. Seizure disorder: If there is a history of active seizures in the last 6 months, clearance should be obtained from a neurologist that the patient's seizures do not prohibit safe use of a motorized device.

C. A documented history of reckless behavior that threatens physical harm to self and/or others such as that due to drug/alcohol impaired functional abilities.

D. Frequent failure of prior prescribed wheeled mobility devices suggesting a pattern of misuse, abuse, or neglect.

E. Home/Community environment will not support use of motorized device.

F. Fails training with device(s). Every effort should be made to resolve deficiencies and should include consideration of retraining and equipment alterations and modifications.

Specific indications/contraindications

A. Scooters:

1. Indications

a. Must meet general indications for motorized mobility.

b. The veteran is able to negotiate his or her home environment without power mobility but requires power mobility outside the home.

c. The scooter should provide sufficient postural support to assure the user's safety and comfort. Standard seating of scooters allows only minimal modification for balance and postural needs and should be evaluated for at-risk patients to ensure that the scooter seating will be adequate.

d. Patients should be able to transfer safely to and from the scooter.

e. Patient does not require specialized seating that is not available in scooters.

Intended environments can accommodate the turning radius of the scooter.

2. Contraindications

a. Refer back to general contraindications for motorized mobility.

b. The veteran requires power mobility in home environments that cannot be provided by a scooter.

c. Inability to transfer safely to and from the device.

d. Postural support needs exceed those available in scooters.

e. Inability to achieve adequate pressure relief in a scooter.

f. Inability to safely guide a power mobility device with a tiller.

g. Patients with progressive disorders likely to compromise the ability to sit and guide a scooter safely and comfortable within the year may be better served in a power chair even if they have adequate function to manage a scooter at the time of evaluation.

B. Power wheelchairs

1. Indications

a. Must meet general indications for motorized

mobility.

- b. Requires a power device for functional mobility within the home or work environment.
- c. Requires seating interventions to accommodate postural support needs that cannot be met with a scooter.
- d. Requires power tilt and or power recline mechanisms to promote skin integrity or is essential to manage medical conditions (i.e. postural hypotension, pulmonary hygiene etc.)
- e. Requires specialty controls to operate the power mobility device independently (i.e. sip and puff, chin control, head array).
- f. The patient has a progressive disorder that will necessitate a power wheelchair within one year.

2. Contraindications:

- a. Refer to general contraindications for power mobility.
- b. The patient is able to functionally walk or propel a manual wheelchair in the home and is projected to be able to do so for more than one year.

Special note: Tilt/recline

Power tilt/recline and a combination of power tilt/recline are options that may be included in a power wheelchair prescription to improve the health and function of the veteran. These options are added when medically indicated. The combination of tilt and recline is reserved for those whose goals cannot be met by either tilt or recline alone. Power tilt/recline and a combination of the two are prescribed most frequently to help improve pressure distribution. Other indications include the management of autonomic dysfunction (i.e. poorly controlled hypotension), to relieve pain or edema, or to improve pulmonary function. Power tilt systems typically allow for consistent postural support and stability and may be particularly useful to those whose spasticity is aggravated by the change in position inherent to recline. Tilting the seat anteriorly can ease the difficulty of transfers. Unfortunately, an extended time in a posteriorly tilted

position may impair bladder emptying for those who use an indwelling catheter. Recline can be helpful in bladder emptying, in promoting peroneal hygiene, and preserving range of motion in the hip. However, posture control is often more difficult to maintain in recline.

C. Pushrim-activated power-assist wheelchairs (PAPAW)

1. Introduction:

a. Long-term manual wheelchair propulsion has been linked to a variety of upper limb disorders including rotator cuff tendonitis, lateral epicondylitis, cubital tunnel and carpal tunnel neuropathies, fibrocartilage metaplasia and calcific tendonitis. However, manual wheeling also provides aerobic exercise. The benefits of exercise are well known and include promotion of cardiovascular fitness, reduction of hypertension, improved glycemic control, improved lipid profiles, reduction of anxiety and an improved sense of well-being. Animal research studies suggests that regular exercise increases resistance to neural injury, and can promote neural plasticity (the ability of the brain and spinal cord to reorganize and restore function after injury). Positive self-image has also been related to manual wheeling.

b. Traditionally, the only wheelchair propulsion options available were manual and power. Manual wheelchairs have been prescribed for those who can self-propel while power wheelchairs and scooters are prescribed for those who cannot. Pushrim-activated power-assist wheelchairs are a third option. PAPAWs require users to stroke the handrims to activate small, lighter weight motors, which then drive the wheels for brief periods of time (seconds). To keep a PAPAW moving, users must continue to stroke the handrims as they would if they were propelling a standard manual chair

c. Power-assist wheelchairs attempt to address several limitations of conventional

manual and power wheelchairs. Compared to manual chairs, power assist chairs require less effort to propel, especially in environments such as inclines, uneven terrain, and carpeted surfaces. It is thought that long-term use of power-assist wheelchairs will reduce the magnitude of forces that impact the shoulder, elbow and wrist. These forces are believed to contribute to repetitive stress disorders of the upper limb including carpal tunnel syndrome and rotator cuff disease. Compared to standard power wheelchairs, power assist chairs are lighter and thus should be easier to transport. Additionally, because propulsion of PAPAWs requires continued stroking of the handrim, PAPAWs provide more exercise than guiding a joystick on a traditional power chair.

2. Indications:

- a. Must meet guidelines for motorized mobility.
- b. Patient desires to propel the wheelchair via the handrims.
- c. Routinely confronts terrains or environments that are impractical/unmanageable with a manual wheelchair.
- d. Patient desires the opportunity to engage in mobility related exercise.
- e. Desires the maneuverability and accessibility provided by PAPAW.
- f. Patient has plan in place to transport the PAPAW to intended environments as necessary.

3. Contraindications:

- a. Refer to general contraindications.
- b. Patients identified medical needs are better met by a power wheelchair (i.e. needs power tilt or recline).

- c. An inability to control the PAPA^W or lack of judgment sufficient to ensure safety.
- d. An ability to meet rehabilitation goals with a manual wheelchair.
- e. A lack of interest in propelling a PAPA^W.
- f. A progressive disorder likely to render a PAPA^W impractical within a year.
- g. Patient or support system are unable to transport the PAPA^W to needed environments.

Special note: In almost all incidents, a veteran requiring a conventional power wheelchair would not be a candidate for a PAPA^W. Conversely, a veteran receiving a PAPA^W would not also receive a conventional power chair unless an exceptional situation exists.

D. Enhanced Power

Power Wheelchairs with an elevating or descending seat:

- a. General comments: potential advantages to using a power wheelchair with the ability to change vertical position include improved self-esteem, improved social function, enhanced employment potential, enhanced communication, and improved quality of life. Elevation or descent may also result in improved functional independence, allowing the user to access surfaces that cannot be reached from a fixed seated position.
- b. Indications:
 - 1. Criteria for power mobility have been met.
 - 2. Functional goals have been identified that can be achieved by changes in vertical position.
 - 3. Vocational goals have been identified that can be achieved by changes in vertical position.

4. Communication goals have been identified that can be achieved by changes in vertical position.

5. Patient desires elevation capability and understands/accepts limitations of using a chair with this capability.

c. Contraindications:

1. Refer to general contraindications.

Power standing wheelchairs

A. General comments:

1. Many medical benefits have been attributed to power wheelchairs with the capacity for positioning the user in a vertical position although these have yet to be convincingly substantiated. These include improved digestion, decrease of spasticity, resistance to bone loss, decreased incidence of contracture, improved cardiovascular and pulmonary function, decrease risk of pressure sores, improved bladder function, and circulation. Further potential advantages include improved self-esteem, improved social function, enhanced employment potential, enhanced communication, and improved quality of life. Standing may also result in improved functional independence, allowing the user to reach shelves and surfaces that cannot be reached from a seated position.

2. However, there are risks associated with standing including skin breakdown as a result of increased shear forces during repositioning, the potential for bone fractures, orthostatic hypotension, and autonomic instability. There are also limitations in using a power wheelchair with standing function including a loss of precise seated postural control, a slower operating speed in the standing mode and longer wheelbases which may result in a longer turning radii. These longer bases may present a difficulty for the user in knowing where the back of the chair is in space. Therefore, standing capability should only be prescribed when there are specific medical or vocational justifications that cannot be met by seat elevation or with other more practical solutions. It is also important that the patient understands and accepts the limitations of using a wheelchair with this capability prior

to prescription of such a device.

B. Indications:

1. Criteria for power mobility has been met.
2. The patient has a specific medical indication for standing (e.g. pulmonary hygiene, bladder management etc) as recommended by a physician with appropriate expertise.
3. The patient has specific home management or vocational goals that cannot be achieved by seat elevation.

C. Contraindications:

1. Refer to general contraindications.
2. The patient is placed at an unacceptable risk for exacerbation of any significant medical condition (such as autonomic dysreflexia triggered by standing, poorly controlled postural hypotension) or development of a new conditions (e.g. fractures, skin breakdown as result of increased shear forces) as a result of standing.

E. Multienvironmental power wheelchairs

A. Dispensation of Multienvironmental power wheelchairs will be considered only when:

1. Standard criteria for power mobility have been met.
2. The patient must access environments in the home or at work that are inaccessible by standard issue power mobility.
3. The device has been approved through standard Central Office procedures.

B. The following reasons in and of themselves are

not acceptable justifications for multienvironmental power wheelchairs:

1. Recreational access.
2. To replace standard VA power mobility devices that have been damaged due to the carelessness or recklessness of the user.

V. AVAILABLE ALTERNATIVES: Manual wheelchairs and four wheeled walkers with hand brakes, baskets, and seats are available for patients who have a higher level of functioning than would qualify the patient for a motorized chair. Other mobility aids such as canes, crutches, walkers, and/or prostheses may enable gait sufficiently to alleviate the need for motorized mobility. Exercise, rehabilitative therapies, medical, and/or surgical treatments can be effective alternatives for some conditions affecting endurance or causing pain that limits upper or lower limb function.

APPROVED/DISAPPROVED: *SIGNED*

Jonathan B. Perlin, MD, PhD, MSHA, FACP
Acting Under Secretary for Health

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