

Wheelchairs - mobility assistive equipment (MAE)

These services may or may not be covered by your HealthPartners plan. Please see your plan documents for your specific coverage information. If there is a difference between this general information and your plan documents, your plan documents will be used to determine your coverage.

Administrative Process

Prior authorization is required:

- For purchase of a manual wheelchair (see Codes section for specific HCPCS codes)
- For rental or purchase of a scooter or power wheelchair (see Codes section for specific HCPCS
- codes)
 - For the following wheelchair options:
 - Manual wheelchair standing system (E2230)
 - Power wheelchair standing system (E2301)
 - Power wheelchair seat elevating system (E2298)
 - Power tilt (E1002)
 - Power recline (E1003, E1004, E1005)
 - Combination of power tilt and recline (E1006, E1007, E1008)
 - Power wheelchair attendant control (E2331)
 - Electronic connection between wheelchair controller and one power seating system motor (E2310)

• Electronic connection between wheelchair controller and 2 or more power seating system motors (E2311)

Prior authorization is not required:

- For rental items for members enrolled in a hospice program
- For rental of a manual wheelchair
- For the following wheelchair options because they are ineligible for coverage, unless otherwise noted below:
 - Stand and drive package (for wheelchair standing system) (K0108)
 - Wheelchair-mounted assistive robotic arm (K0108)
 - Non-sealed power wheelchair battery (E2358, E2360, E2362, E2364, E2372)
 - Dual-mode battery charger (E2367)

Clinics should direct members to contact a contracted Durable Medical Equipment (DME) vendor to order mobility assistive equipment. Please call Member Services if you need information about contracted vendors.

To request prior authorization, vendors should submit any supporting clinical information available with the Durable Medical Equipment (DME) Vendor Prior Authorization Form (see related content at right).

Mobility Assistive Equipment (MAE) in a Skilled Nursing Facility (SNF)/ Long Term Care (LTC) facility

Standard manual wheelchairs for members residing in a skilled nursing facility (SNF) or long-term care (LTC) facility are included in the per diem charge and not covered separately.

MAE that is not included in the per diem (such as power operated vehicles /scooters and power wheelchairs) are eligible for coverage when the member's permanent residence is a SNF/LTC and the member meets the criteria below. MAE, including wheelchairs, approved outside the facility per diem become the property of the resident, not the facility.

Process to obtain a power wheelchair or scooter/POV:

• A medical provider must conduct an examination of member before writing the order for the device (the examination may be performed during a hospital or nursing home stay). The medical provider may refer the member to a physical or occupational therapist (PT or OT) to complete part of this examination. (Note: If the device is a replacement of one that was previously covered, an examination is not required.)

• The medical provider completes the Mobility Assistive Equipment (MAE) DME Medical Review form (see Related Content for form) and submits it to the DME vendor. The vendor must receive the completed form prior to delivery of the device.

• The member (or family member) works with the physical therapist and/or Assistive Technology Professional (ATP) to arrange a home assessment and evaluation with the DME vendor. (Note: If the device is a replacement of one that was previously covered, a home assessment and evaluation is not required.)

• The DME vendor acquires & submits all information for prior authorization.

Process to obtain a manual wheelchair:

The medical provider completes the Mobility Assistive Equipment (MAE) DME Medical Review form (see Related Content for form) and submits it to the DME vendor. The vendor must receive the completed form prior to delivery of the device.

The member (or family member) works with the physical therapist and/or Assistive Technology Professional (ATP) to arrange a home assessment and evaluation with the DME vendor. (Note: If the device is a replacement of one that was previously covered, a home assessment and evaluation is not required.)

The DME vendor acquires & submits all information for prior authorization.

Coverage

MAE is generally covered subject to the indications listed below and per your plan documents.

The type of wheelchair and options provided should be appropriate for the degree of the member's functional impairments.

Indications that are covered

Criteria for all MAE

2.

All types of Mobility Assistive Equipment (MAE) must meet the following criteria to be eligible for coverage:

- The member has a mobility limitation that significantly impairs his or her ability to participate in one or more mobility-related activities of daily living (MRADLs) appropriate to his or her needs and abilities. (See MRADL definition below). A mobility limitation is one that:
 - Prevents the member from accomplishing an MRADL entirely; or Α.
 - B. Places the member at a reasonably determined heightened risk of morbidity or mortality secondary to the attempts to perform an MRADL; or

Prevents the member from completing an MRADL within a reasonable time frame; and С The member's mobility limitation cannot be sufficiently resolved by the use of other assistive

devices, including but not limited to, an appropriately fitted cane or walker; and

Features of the wheelchair are based upon the member's physical and functional capabilities and 3. body size as assessed by a qualified professional or professionals and appropriate to the type of device requested; and

4. An assessment of the member's home demonstrated that the home provides adequate access between rooms, maneuvering space and surfaces for use of the MAE provided.

5. For a dependent child, an MAE is eligible for coverage if needed through high school, as long as criterion #2 above is met; and the member's typical environment supports the use of the requested type of MAE.

Manual Wheelchair coverage criteria

A manual wheelchair (E1161, E1229, E1231-E1238, K0001-K0007, K0009) is covered when

- The member meets the Criteria for All MAE above, and: 1.
- 2. Has sufficient upper extremity function to propel a manual wheelchair, or
- 3. Has a caregiver who is available, willing, and able to provide assistance with the wheelchair.

Transport Chair, Rollabout Chair, or Geri Chair coverage criteria

A transport or companion chair (E1037, E1038 or E1039), rollabout chair (E1031), or geri chair (E1031) is covered as an alternative to a standard manual wheelchair (K0001) when

The Criteria for All MAE above are met; and 1.

2. Member has a caregiver who is available, willing, and able to provide assistance with the wheelchair.

Power Operated Vehicle (POV)/Scooter coverage criteria

A POV/scooter (K0800, K0801, K0802, K0806, K0807, K0808) is covered when

- The member meets the Criteria for All MAE above, and 1. 2.
 - All of the following criteria are met:

The member is unable to self-propel an optimally configured manual wheelchair to perform MRADLs during a typical day. An optimally configured wheelchair is one with an appropriate wheelbase, weight, seating options and other appropriate non-powered accessories; and

- The member is able to Β.
 - Safely transfer to and from a POV, and i.
 - ii. Operate the tiller steering system, and

- iii. Maintain postural stability and position to safely operate the POV; and
- C. The POV meets the needs of the member in lieu of a power wheelchair.

Power Wheelchair (PWC) coverage criteria

A power wheelchair is eligible for coverage for members 4 years of age and older when

1. The member meets the Criteria for All MAE above, and

2. All of the following criteria are met:

A. The member is unable to self-propel an optimally configured manual wheelchair to perform MRADLs during a typical day. An optimally configured wheelchair is one with an appropriate wheelbase, weight, seating options and other appropriate non-powered accessories; and
B. The member is unable to safely operate a POV or maintain postural stability and position while operating a POV; and

C. The member is capable of safely operating the controls of a power wheelchair, or has a caregiver who cannot push a manual chair but can propel the power chair using an attendant control; and

D. The additional features provided by a power wheelchair are needed to allow the member to participate in one or more MRADLs.

Pediatric Power Wheelchair (PWC) coverage criteria

A power wheelchair is eligible for coverage for members between the ages of 18 months and 4 years when

- 1. The member meets the Criteria for All MAE above, and
 - 2. All of the following criteria are met:

A. Assessments have been completed that verify the member is developmentally and cognitively ready to begin to operate a power wheelchair; **and**

B. The member is expected to use a powered mobility device as a primary means of mobility for several years. It is not necessary that there is no expectation or hope of functional walking in the future; **and**

C. The device will be used for age appropriate MRADLs; and

D. The member's caregivers have carefully considered the risks and benefits of independent power mobility for very small children; and

E. The member has participated in an age-appropriate mobility training program and/or instruction.

3. An attendant control, remote stop switch and/ or impact guards will be covered when necessary for the child's safe and effective functioning in the power wheelchair, provided all other criteria are met.

4. A seat elevator and/or power standing system is covered for members aged 18 months to 4 years, provided all other PWC criteria are met.

5. Power wheelchairs for children under 18 months are considered not medically necessary.

Additional Criteria for Specific Types of Power Wheelchairs

2.

In addition to the Criteria for All MAE and Power Wheelchair criteria above, the specific criteria below must be met for each type of power wheelchair (PWC).

- 1. A Group 1 PWC (K0813-K0816) or Group 2 PWC (K0820-K0829) is covered when the member:
 - A. Meets the criteria above for a power wheelchair; and
 - B. The wheelchair is appropriate for the member's weight.
 - A Group 2 Single Power Option PWC (K0835-K0840) is eligible for coverage when the member:
 - A. Meets the criteria above for a power wheelchair; and

B. Requires a drive control interface other than a hand or chin-operated standard proportional joystick (examples include but are not limited to head control, sip and puff, switch control); or

C. Meets the criteria for a power tilt or a power recline seating system (see Power Wheelchair Options section below for criteria), and the system is being used on the wheelchair; and

D. Has had a specialty evaluation that was performed by a licensed/certified medical professional, such as a physical therapist (PT) or occupational therapist (OT), or physician who has specific training and experience in rehabilitation wheelchair evaluations and that documents the medical necessity for the wheelchair and its special features. The PT, OT, or physician may have no financial relationship with the supplier; and

E. The wheelchair is provided by a supplier that employs a RESNA-certified Assistive Technology Professional (ATP) who specializes in wheelchairs and who has direct, in-person involvement in the wheelchair selection for the member.

- 3. A Group 2 Multiple Power Option PWC (K0841-K0843) is covered when the member:
 - A. Meets the criteria above for a power wheelchair; and
 - B. Meets the criteria for a power tilt or a power recline seating system (see Power Wheelchair Options section below for criteria), and the system is being used on the wheelchair; or
 - C. Uses a ventilator which is mounted on the wheelchair; and

D. Has had a specialty evaluation that was performed by a licensed/certified medical professional, such as a PT or OT, or physician who has specific training and experience in rehabilitation wheelchair evaluations and that documents the medical necessity for the wheelchair and its special features. The PT, OT, or physician may have no financial relationship with the supplier; and

E. The wheelchair is provided by a supplier that employs a RESNA-certified Assistive Technology Professional (ATP) who specializes in wheelchairs and who has direct, in-person involvement in the wheelchair selection for the member.

4. A Group 3 PWC with no power options (K0848-K0855) is eligible for coverage when the member:

A. Meets the criteria above for a power wheelchair; and

B. The member's mobility limitation is due to a neurological condition, myopathy, or congenital skeletal deformity; and

C. The member has had a specialty evaluation that was performed by a licensed/certified medical professional, such as a PT or OT, or physician who has specific training and experience in rehabilitation wheelchair evaluations and that documents the medical necessity for the wheelchair and its special features. The PT, OT, or physician may have no financial relationship with the supplier; and

D. The wheelchair is provided by a supplier that employs a RESNA-certified Assistive Technology Professional (ATP) who specializes in wheelchairs and who has direct, in-person involvement in the wheelchair selection for the member.

5. A Group 3 PWC with Single Power Option (K0856-K0860) or with Multiple Power Options (K0861-K0864) is eligible for coverage when the member:

A. Meets the criteria above for a power wheelchair; and

B. Meets the criteria above for a Group 2 Single Power Option or Group 2 Multiple Power Options PWC.

6. **A Group 4 PWC (K0868-K0886)** is covered when the member:

A. Meets the criteria above for a power wheelchair; and

B. The member's mobility limitation is due to a neurological condition, myopathy, or congenital skeletal deformity; and

C. Meets the criteria above for a Group 3 Multiple Power Options PWC.

7. A Group 5 (Pediatric) PWC with Single Power Option (K0890) or with Multiple Power Options (K0891) is eligible for coverage when the member:

A. Meets either the Power Wheelchair or Pediatric Power Wheelchair coverage criteria above (depending on member's age); and

B. Is expected to grow in height; and

C. Meets the criteria above for a Group 2 Single Power Option or Group 2 Multiple Power Options PWC.

Special Considerations

For a member who is a dependent child, a manual or power wheelchair, with seat elevator (E2298) and/or a power standing feature (E2301) or manual standing feature (E2230), is eligible for coverage if needed through high school when:

1. The member's mobility limitation cannot be sufficiently resolved by the use of other assistive devices, including but not limited to, an appropriately fitted cane or walker; and

2. Member is capable of independently operating the wheelchair that is provided; or

3. Member has a caregiver who is available, willing, and able to provide assistance with the wheelchair.

MAE Options

Note: The allowance for a POV/ scooter includes all options and accessories that are provided at the time of initial issue, including but not limited to: batteries, battery chargers, seating systems, etc. If a member owned POV meets coverage criteria, medically necessary replacement items are covered.

Power Wheelchair Options

Power Tilt and/or Recline Seating Systems (E1002-E1008)

A power seating system – tilt only, recline only, or combination tilt and recline – with or without power elevating leg rests will be covered if criteria 1 and 2 are met –and– if criterion 3, 4, or 5 is met:

- 1. All of the coverage criteria for a power wheelchair are met; and
- 2. A specialty evaluation was performed by a licensed/certified medical professional, such as a

physical therapist (PT) or occupational therapist (OT) or physician who has specific training and experience in rehabilitation wheelchair evaluations and that documents the medical necessity for the tilt/ recline features.

The PT, OT, or physician may have no financial relationship with the supplier; and

3. The member is at high risk for development of a pressure ulcer and is unable to perform a functional weight shift; or

4. The member utilizes intermittent catheterization for bladder management and is unable to independently transfer from the wheelchair to bed; or

5. The power seating system is needed to manage increased tone or spasticity. If these criteria are not met, the power seating component(s) will be denied as not medically necessary.

Attendant Control (Power Wheelchair Drive Control System) (E2331)

 An attendant control is covered in place of a member-operated drive control system if the member meets coverage criteria for a wheelchair, is unable to operate a manual or power wheelchair and has a caregiver who is unable to operate a manual wheelchair but is able to operate a power wheelchair; or
An attendant control is covered for a member aged 18 months to 4 years when the member meets

criteria for a power wheelchair.

3. An attendant control for a member 4 years of age or older that is provided in addition to a memberoperated drive control system is not covered.

Power Seat Elevating Feature (E2298)

A power seat elevating feature is considered medically necessary when:

1. All of the coverage criteria for a power wheelchair are met; and

2. A specialty evaluation documenting the medical necessity for the power seat elevating feature was performed by a licensed/certified medical professional, such as a physical therapist (PT) or occupational therapist (OT) or physician, who has specific training and experience in rehabilitation wheelchair evaluations. The PT, OT, or physician may have no financial relationship with the supplier; and

3. One of the following applies:

A. The member must routinely transfer between uneven surfaces and the surfaces cannot be adjusted and the seat elevating feature allows them to independently transfer; or

B. The member cannot be safely transferred using a patient lift or standing transfer but can safely transfer with the seat elevating feature; or

C. The member is at high risk for repetitive strain injury or has limited range of reach of the upper extremities, which prohibits participation in MRADLs from a static seat height due to:

- i. limited upper extremity strength; or
- ii. limited upper extremity active range of motion; or
- iii. deformity; or
- iv. short stature.

MAE Accessories

Accessories are covered when:

- 1. The member has an MAE that meets coverage criteria, and;
- 2. The accessory itself is medically necessary.

Items that are not covered

1. A functional reach package (also known as active reach) (K0108) which allows the member to lean forward with the seat elevated is ineligible for coverage when a seat elevating system is non-covered.

2. Standing Systems: a power or manual standing feature (E2301 or E2230, respectively) is non-

covered (except when needed for a dependent child through high school) because it is not primarily medical in nature. When a standing system is non-covered:

A. A stand and drive package (K0108) is ineligible for coverage because a standing feature is non-covered.

3. An electrical connection device described by code E2310 or E2311 when the sole function of the connection is for a power standing feature. (Note: the electrical connection device described by these codes is covered when needed to supply power for two different covered functions, such as when a member meets criteria for power tilt and power recline.)

4. MAE that will not assist members with MRADLs, except when needed by dependent children through high school.

5. MAE that is primarily for use outside the home, except when needed by dependent children through high school.

6. Duplicate or similar devices, such as rental or purchase of two or more types of MAE when one of the devices is still functional is not covered, unless there is a change in the member's physical condition that makes a different mobility device medically necessary.

7. Items which are primarily educational in nature, or for hygiene, vocation, comfort, convenience or recreation are ineligible for coverage.

8. A non-sealed battery (E2358, E2360, E2362, E2364, E2372) is not covered for any indication.

9. A dual-mode battery charger (E2367) is not covered for any indication.

10. Mobility assistive equipment covered under a facility's per diem is not eligible for separate reimbursement.

11. A wheelchair-mounted assistive robotic arm (K0108) is considered not medically necessary. There is insufficient reliable evidence in the form of high quality peer-reviewed medical literature to establish the safety and efficacy of this device or its effect on health care outcomes.

12. Mobility assistive equipment that does not meet the definition of durable medical equipment (see definitions below).

Definitions

Durable Medical Equipment is equipment which:

- can withstand repeated use;
- is primarily and customarily used to serve a medical purpose;
- generally is not useful to a person in the absence of illness or injury; and
- is appropriate for use in the home.

All requirements of the definition must be met before an item can be considered to be durable medical equipment.

Functional reach package (also called active reach): an added feature of the power wheelchair that combines forward tilt with a power seat elevating system. It allows the member to lean forward with the seat elevated so they can get closer to objects.

Mobility Assistive Equipment (MAE) refers to manual or power wheelchairs, scooters or power operated vehicles.

Mobility-Related Activities of Daily Living (MRADLs) refers to eating (including travelling to the dining room in assisted living facilities), dressing, grooming, toileting and bathing.

Mobility limitation refers to a limitation that significantly impairs a member's ability to participate in one or more mobility-related activities of daily living (MRADLs), prevents the member from accomplishing an MRADL entirely, places the member at a heightened risk of morbidity or mortality secondary to the attempts to perform an MRADL or prevents the member from completing an MRADL within a reasonable time frame.

Power attendant control: an accessory to allow a caregiver (someone other than yourself) to operate a power wheelchair.

Power mobility device refers to a power wheelchair.

Power Operated Vehicle (POV) refers to a power operated scooter. A POV is a 3- or 4-wheeled device with tiller steering and limited seat modification capabilities.

Power seat elevating system: an added feature of the wheelchair to raise the seat in order to reach items on counters or in cupboards, turn on lights, and other household tasks.

Seat elevation reduced drive: a feature that allows you to drive slowly while your seat is elevated.

Stand and drive package: a feature that allows you to drive the wheelchair while in the standing position. Used with the power standing system feature.

Codes

If available, codes are listed below for informational purposes only, and do not guarantee member coverage or provider reimbursement. The list may not be all-inclusive.

The services associated with these codes require prior authorization:	
Manual Wheelchairs	

Codes	Description
E1031	Rollabout chair, any and all types with casters 5" or greater
E1037	Transport chair, pediatric size
E1038	Transport chair, adult size, patient weight capacity up to and including 300 pounds
E1039	Transport chair, adult size, heavy duty, patient weight capacity greater than 300 pounds
E1161	Manual adult size wheelchair, includes tilt in space
E1229	Wheelchair, pediatric size, not otherwise specified

Wheelchair, pediatric size, tilt-in-space, rigid, adjustable, with seating system
Wheelchair, pediatric size, tilt-in-space, folding, adjustable, with seating system
Wheelchair, pediatric size, tilt-in-space, rigid, adjustable, without seating system
Wheelchair, pediatric size, tilt-in-space, folding, adjustable, without seating system
Wheelchair, pediatric size, rigid, adjustable, with seating system
Wheelchair, pediatric size, folding, adjustable, with seating system
Wheelchair, pediatric size, rigid, adjustable, without seating system
Wheelchair, pediatric size, folding, adjustable, without seating system
Standard wheelchair
Standard hemi (low seat) wheelchair
Lightweight wheelchair
High strength, lightweight wheelchair
Ultralightweight wheelchair
Heavy duty wheelchair
Extra heavy duty wheelchair
Other manual wheelchair/base

Power Operated Vehicles (POV) (Scooters)

Codes	Description
K0800	Power operated vehicle, Group 1 standard, patient weight capacity up to and including 300 pounds
K0801	Power operated vehicle, Group 1 heavy duty, patient weight capacity 301 to 450 pounds
K0802	Power operated vehicle, Group 1 very heavy duty, patient weight capacity 451 to 600 pounds
K0806	Power operated vehicle, Group 2 standard, patient weight capacity up to and including 300 pounds
K0807	Power operated vehicle, Group 2 heavy duty, patient weight capacity 301 to 450 pounds
K0808	Power operated vehicle, Group 2 very heavy duty, patient weight capacity 451 to 600 pounds

Power Wheelchairs (PWC)

Codes	Description
K0813-K0816	Power wheelchair, Group 1
K0820-K0829	Power wheelchair, Group 2 standard, heavy duty, very heavy duty, or extra heavy duty
K0835-K0843	Power wheelchair, Group 2 standard, heavy duty, very heavy duty, or extra heavy duty, with
	single or multiple power option
K0848- K0864	Power wheelchair, Group 3 standard, heavy duty, very heavy duty, or extra heavy duty; no,
	single, or multiple power option
K0868-K0871	Power wheelchair, Group 4 standard, heavy duty, or very heavy duty
K0877-K0880	Power wheelchair, Group 4 standard, heavy duty, or very heavy duty, single power option
K0884-K0886	Power wheelchair, Group 4 standard or heavy duty, multiple power option
K0890-K0891	Power wheelchair, Group 5 pediatric, single or multiple power option

Wheelchair Options

Codes	Description
E2230	Manual wheelchair standing system
E2301	Power wheelchair standing system
E2298	Power seat elevation system
E1002	Power tilt
E1003	Power recline
E1004	Wheelchair accessory, power seating system, recline only, with mechanical shear reduction
E1005	Wheelchair accessory, power seating system, recline only, with power shear reduction
E1006	Combination of power tilt and recline
E1007	Wheelchair accessory, power seating system, combination tilt and recline, with mechanical shear reduction
E1008	Wheelchair accessory, power seating system, combination tilt and recline, with power shear reduction
E2331	Power wheelchair attendant control
E2310	Electronic connection between wheelchair controller and one power seating system motor
E2311	Electronic connection between wheelchair controller and 2 or more power seating system motors

The services associated with these codes do not require prior authorization because they are ineligible for coverage, unless otherwise noted above:

Codes	Description
K0108	Stand and drive package (for wheelchair standing system)
K0108	Wheelchair-mounted assistive robotic arm
E2358	Non-sealed power wheelchair battery
E2360	Power wheelchair accessory, 22nf non-sealed lead acid battery, each
E2362	Power wheelchair accessory, group 24 non-sealed lead acid battery, each
E2364	Power wheelchair accessory, U-1 non-sealed lead acid battery, each
E2372	Power wheelchair accessory, Group 27 non-sealed lead acid battery, each
E2367	Dual-mode battery charger

CPT Copyright American Medical Association. All rights reserved. CPT is a registered trademark of the American Medical Association.

Products

This information is for most, but not all, HealthPartners plans. Please read your plan documents to see if your plan has limits or will not cover some items. If there is a difference between this general information and your plan documents, your plan documents will be used to determine your coverage. These coverage criteria may not apply to Medicare Products if Medicare requires different coverage. For more information regarding Medicare coverage criteria or for a copy of a Medicare coverage policy contact Member Services at 952-883-7979 or 1-800-233-9645.

Vendor

Items must be received from a contracted vendor for in-network benefits to apply.

Wheelchair/scooter vendors must be enrolled as medical equipment providers and be contracted with HealthPartners. Providers must be able to provide support services, such as emergency services, delivery, setup, repair service, warranty service, education, and ongoing assistance with the use of the wheelchair. A copy of the warranty must be given to the member and also kept in the provider's records.

The provider must have loaner chairs available for the member whose chair requires repair. If the member's chair is customized and unique to their specific needs. HealthPartners would not expect the provider to have an equivalent chair on hand. If the provider has to rent a chair to accommodate the member's needs while repairing the member's chair, the provider will be reimbursed for one month's rental; use code K0462. If the rental is for longer than one month, provider must request an authorization explaining the extenuating circumstances. HealthPartners does not cover repairs of loaner chairs.

Approved: Medical Director Committee 01/01/94, 3/14/17; Revised 08/13/02, 12/15/05, 11/3/06, 4/19/07, 7/11/07, 11/28/08, 1/12/12, 3/23/17, 9/1/17, 6/22/18, 6/18/19, 3/17/20, 11/25/22, 3/14/24; Annual Review 4/19/07, 11/28/08, 9/9/09, 7/12/10, 7/2011, 1/2012, 1/2013, 1/2014, 1/2015, 1/2016, 11/2016, 10/2017, 10/2018, 10/2019, 10/2020, 10/2021, 10/2022, 10/2023

References

- Abrams, G.M., & Wakasa, M. Chronic complications of spinal cord injury and disease. In: UpToDate, Aminoff, M. J., 1. Silveira, M. J., & Rabinstein, A. A. (Eds), UpToDate, Waltham, MA. (Accessed on November 7, 2023.)
- 2. Bach, J. R. Continuous noninvasive ventilatory support for patients with respiratory muscle dysfunction. In: UpToDate, King, T. E., & Morrison, R. S. (Eds), UpToDate, Waltham, MA. (Accessed on January 9, 2024.)
- 3 Bottos, M., Bolcati, C., Sciuto, L., Ruggeri, C., & Feliciangeli, A. (2001). Powered wheelchairs and independence in young children with tetraplegia. Developmental Medicine & Child Neurology, 43(11), 769-77.
- Bray, N., Kolehmainen, N., McAnuff, J., Tanner, L., Tuersley, L., Beyer, F., Grayston, A., Wilson, D., Edwards, R. T., 4. Noyes, J., & Craig, D. (2020). Powered mobility interventions for very young children with mobility limitations to aid participation and positive development: The EMPoWER evidence synthesis. Health technology assessment (Winchester, England), 24(50), 1–194. https://doi.org/10.3310/hta24500
- Butler, C., Okamoto, G., & McKay, T. (1984). Motorized wheelchair driving by disabled children. Archives of Physical 5 Medicine and Rehabilitation, 65(2), 95.
- Durkin, J. (2009). Discovering powered mobility skills with children: Responsive partners' in learning. International Journal 6. of Therapy and Rehabilitation, 16(6), 331-342. Furumasu, J., Guerette, P., Tefft, D. (1996). The development of a powered wheelchair mobility program for young
- 7. children. Technology and Disability, 5, 41-48.
- Furumasu, J., Guerette, P., & Tefft, D. (2004), Relevance of the Pediatric Powered Wheelchair Screening Test for children 8. with cerebral palsy. Developmental Medicine and Child Neurology, 46(7), 468-74.
- Gecht-Silver, M. R. Joint protection program for the upper limb. In: UpToDate, Isaac, Z. (Ed), UpToDate, Waltham, MA. 9 (Accessed on November 7, 2023.)
- 10. Hayes, Inc. Hayes Evidence Analysis Research Brief. JACO Assistive Robotic Arm (Kinova Inc.) for Use by Patients with Neuromuscular Disorders. Lansdale, PA: Hayes, Inc.; January, 2020. Archived February, 2021.
- 11. Haves, Inc. Haves Evidence Analysis Research Brief, JACO Assistive Robotic Arm Kinova Inc.) for Use by Pediatric Patients with Neuromuscular Disorders. Lansdale, PA: Hayes, Inc.; October, 2021.
- 12. Jones, M. A., McEwen, I. R., & Neas, B. R. (2012). Effects of power wheelchairs on the development and function of young children with severe motor impairments. Pediatric Physical Therapy, 24, 131-140.

- Livingstone, R. & Paleg, G. (2014). Practice considerations for the introduction and use of power mobility for children Developmental Medicine & Child Neurology, 56, 210–222.
- Masselink, C. E., LaBerge, N. B., Piriano, J., & Detterbeck, A. C. (2022). Policy Analysis on Power Seat Elevation Systems. Archives of physical medicine and rehabilitation, 103(12), 2454–2462. https://doi.org/10.1016/j.apmr.2022.04.003
- 15. National Coverage Determination (NCD) for DME Reference List (280.1) including rolling chairs 7/1/05– Retrieved from http://www.cms.gov/medicare-coverage-database/details/ncd-details.aspx?NCDId=190&ncdver=2&bc=BAAAgAAAAAA&
- National Coverage Determination (NCD) for Mobility Assistive Equipment (MAE) (280.3) 7/5/05– Retrieved from http://www.cms.gov/medicare-coverage-database/details/ncd-details.aspx?NCDId=219&ncdver=2&bc=AAAAqAAAAA&
- 17. Nilsson, L., Nyberg, P. (1999). Single-switch control versus powered wheelchair for training cause-effect relationships: case studies. *Technology and Disability, 11*, 35-38.
- Nilsson, L. (2007). Driving to learn. The process of growing consciousness of tool use a grounded theory of deplateauing. Lund University, Faculty of Medicine, Department of Health Sciences, Division of Occupational Therapy and Gerontology.
- 19. Nilsson, L., Nyberg, P., & Eklund, M. (2010). Training characteristics important for growing consciousness of joystick-use in people with profound cognitive disabilities *International Journal of Therapy & Rehabilitation*, 17(11), 588-95.
- Paralyzed Veterans of America Consortium for Spinal Cord Medicine (2005). Preservation of upper limb function following spinal cord injury: A clinical practice guideline for health-care professionals. The Journal of Spinal Cord Medicine, 28(5), 434-470. doi:10.1080/10790268.2005.11753844
- Sabari, J., Shea, M., Chen, L., Laurenceau, A., & Leung, E. (2016). Impact of wheelchair seat height on neck and shoulder range of motion during functional task performance. Assistive technology : the official journal of RESNA, 28(3), 183–189. https://doi.org/10.1080/10400435.2016.1140692
- Schiappa, V., Piriano, J., Bernhardt, L., Shea, M., Maurer, C., Rosen, L., ...Dicianno, B.E. (2019). RESNA Position on the Application of Seat Elevation Devices for Power Wheelchair Users - Literature Update 2019. Accessed on November 7, 2023 at

https://www.resna.org/Portals/0/Documents/Position%20Papers/RESNA_App%20of%20Seat%20Elevation%20Devices%2 02019.pdf

 Tefft, D., Guerette, P., & Furumasu, J. (1999). Cognitive predictors of young children's readiness for powered mobility Developmental Medicine & Child Neurology, 41,665–670.