

Practitioner Manual for Wheelchairs & Scooters



A Manual devised by the SWEP Clinical Advisory Team to assist SWEP registered practitioners



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Acknowledgements for information and use of images go to: Cobalt Health, Aidacare

Images in this manual have been used to demonstrate the range and breadth of features available within this AT category. However, images provided should not be considered an endorsement of a particular product; nor should they be considered an exhaustive list of all products or features available. As a practitioner you need to use due diligence to ensure that the item and supplier you recommend is best suited to your consumer, their wishes and needs. SWEP will not be held liable for any mismatch of consumer and AT interface that has resulted from the use of Images or information in this manual.

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Background

The State-wide Equipment Program (SWEP) Clinical Advisors have developed this resource manual to:

- Provide useful information for practitioners
- Provide links to evidence-based practices
- Recommend assessments to assist with identifying successful wheelchair and scooter solutions
- Outline potential risks to consider related to the consumer, support people and the environment
- Describe relevant items and provide links to a range of product types and options

Guidelines and application process

SWEP offers eligible practitioners a registration and credentialing process, whereby credentialing levels are assigned for specific areas of practice according to *The Standard*. For full details on all available credentialing pathways please refer to the relevant standard and information found below.

The Standards: <https://swep.bhs.org.au/the-standard.php>

Registration and credentialing:

- matches AT Practitioner level with consumer and item complexity and establish urgency of consumer need.
- <https://swep.bhs.org.au/registration-and-credentialing.php>

If you are a registered SWEP practitioner you can access the portal to update your details, apply for credentialing or submit applications as appropriate here:

<https://swep.service-now.com/csm>

Please refer to the funding body for which your consumer is eligible to determine the relevant guidelines for what types of AT items will be considered for funding, and whether or not the SWEP portal should be used to submit an application.

[Check Eligibility | SWEP](#)

Definitions

Manual Wheelchair (MWC): A wheelchair that is self-propelled or pushed by another person. The SWEF framework works within two broad categories of manual wheelchairs.

1. A more durable high frequency use wheelchair
 - Wheelchair is used daily
 - Has capacity for adjustments to meet the consumers postural requirements
 - Frame is more robust to accommodate high frequency use and / or additional postural supports (e.g., rigid back supports, harness, head support, etc.)
2. A lower frequency use wheelchair
 - Wheelchair is not used daily
 - Consumer may use alternate methods of mobility
 - Customisation of frame and additional supports is not required to meet consumer postural requirements or frequency of use

Powered Wheelchair (PWC): A powered wheelchair is propelled through the use of a battery powered motor. It can be user or carer operated or a combination of both.

Mobility Scooter: is an electrically powered mobility aid with a manual tiller to control the steering.

Product range and features (summary)

Power Wheelchairs

Types of drive include mid, front or rear wheel drive which function differently and require consideration for each consumer. Refer to the links below regarding how drive wheel configuration can affect the way a chair moves.

www.health.qld.gov.au/data/assets/pdf_file/0028/428482/pdwc-comparison.pdf

<https://www.aci.health.nsw.gov.au/networks/spinal-cord-injury/spinal-seating/module-10>

Common Wheelchair Features

Tilt in Space (TIS)

TIS refers to a change in the orientation of the seat pan relative to the ground, while the seat to the back angle remains constant (no change in the consumer's hip angle). TIS may assist with pressure care, pain relief, postural control, head control, hoisting and positioning in the chair. Anterior tilt can also be used to assist with standing transfers and function such as reach.

Recline

Changes the angle between the seat and back support. Adjustable recline may be useful for hygiene requirements in chair. Fixed recline may be useful for comfort, posture and in accommodating a reduction in hip range (often in combination with cushion prescription). Care must be taken with adjustable recline as it may cause shear and friction, sliding forward and altering position of person in relation to the backrest.

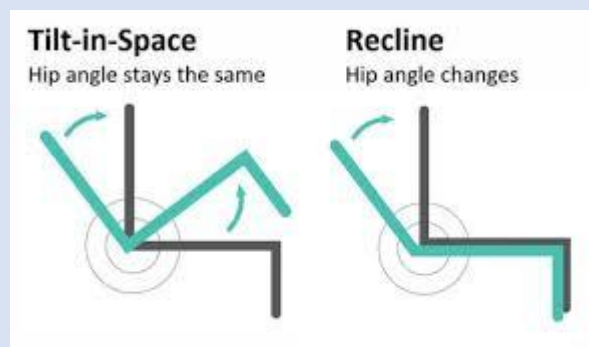


Figure1. Pictorial Comparison of tilt in space and recline

Vertical lift:

Adjusts the height of the user in their seated position, without changing the seat angles. A seat elevator may elevate from a standard seat height or may lower the user closer to the floor.

Sit to stand:

This function is often used in recliners and enables user to move between sitting and standing by changing the position of the wheelchair seat between vertical and horizontal. This feature of the chair reduces the need for physical assistance by consumer and/or carer.

Standing wheelchair:

A wheelchair that enables the user's position to be altered from a seated position to a standing position. Additional assessment and considerations are required which include but are not limited to:

- Bone density
- Hip and knee range of motion
 - This requires assessment individually and also together as required to achieve standing
- Current standing regime
- Follow up and guidance
- Functional gains and considerations
- Recommend physiotherapy input

Dynamic components (head, back, legs)

These may be used to assist with maintaining seated posture in the presence of spasticity and reducing impact for consumers with dysfunctional movement patterns. Use of specialised components requires additional appropriate assessment and trial processes.

Rigidiser:

May be used with cushions on slung upholstery to provide a stable seating base.

Tension adjustable upholstery

Enables adjustability in the tension of the slung seat and can be used to accommodate postural asymmetries and can be tightened as required to reduce the upholstery from slinging.

Custom Moulded Seating

A mould is taken of the consumer and the seating is fabricated to the individual. Seating that is individually moulded to the consumer may be used in the presence of significant postural asymmetries or a movement disorder, to provide increased postural support, to provide sensory feedback or to reduce focal points of pressure

Modular seating

Seating products with the ability to be adjusted and changed to meet postural asymmetries or growth. They are "off the shelf" products as opposed to custom moulded. Modifications may also be scripted prior to order to accommodate individual's requirements such as leg length discrepancies.

Types of Frames

Rigid frame:

- Frame is in one piece
- Improved strength and stability
- Generally lighter weight (material dependent)
- Folding mechanism involves back canes folding onto the seat
- May be customised in consultation with practitioner and supplier prior to order to meet specific consumer requirements.

Folding Frame:

- The frame is folded sideways by the crossbar mechanism in the base of the frame
- Usually, it is heavier due to the cross bar but is material dependent
- More removable parts such as leg hangars and arm rests
- Allows for greater customisation throughout the life of chair including addition of growth kits for width adjustment (check with supplier regarding this option as not available on all chairs)

Frame Weight

Frame weight varies depending on the type of material used and frame type. In addition, the overall MWC weight will be dependent on the type of seating and whether it is removable. Consumer weight and the need to lift the chair in and out of a car (self-lift or by another person) will influence weight specifications.

Addition of power to a manual wheelchair

A manual wheelchair can be powered through the addition of an external device and enable the chair to be operated both manually and through power. The types of additional power devices vary greatly in functionality, weight, overall footprint, modes of use and attachment.

Refer to:

[Choosing Your Optimal Wheelchair Power Assist Device | Sunrise Medical](#)

[0900 - Navigating Power Assist Devices RMH OSS 2023 \(2\)](#)

Mobility Scooter

Mobility Scooters are designed for outdoor use and must have a maximum capable speed of 10 km/hr. when funded by SWEP, and are required to use the footpath wherever possible. There is no standardised format or legislation governing the requirements for assessment of a powered mobility scooter although it is recommended that a thorough assessment is conducted including safety and community use, vision, cognition and clearance from a General Practitioner. A scooter is usually prescribed for someone who has difficulty accessing their community, however, can mobilise in their home environment. As such, they are not designed to have modified seating and pressure care products. Therefore, this needs to be considered with any scooter prescription.

Products Available for SWEP funding

The funding categories can be used in combination

Product	Amount funded
Manual wheelchair:	
Light weight MWC (<15kg)	\$1,250
MWC (>15kg)	\$1,000
Power assist devices	\$,5000
Power wheelchair	\$6,000
Scooter	\$4,000
Pressure care	\$1,070 every 2 years
Modifications / customisations	\$2,750

Recommended Assessments and Considerations for Scooter Prescription

1. Considerations when choosing a scooter

- a. Three-wheeled versus four-wheeled scooter: Four-wheeled scooters often feel more stable for consumers on uneven terrain. However, three-wheeled scooters have a smaller turning circle and are easier to maneuver and have more leg room.

- b. Suspension: differs greatly on scooters so if the consumer has a history of back pain a scooter with good suspension is recommended.
- c. Environment where the scooter will be used. In a hilly environment a consumer may require a scooter with a stronger/larger motor.
- d. Consider using a formal assessment such as the Powered Mobility Device Assessment Training Tool (PoMoDATT). Refer to the link below.

[Using the PoMoDATT – Powered Mobility Device Assessment Training Tool](#)

- e. Getting around on your scooter. It should be noted that taxis are not allowed to transport consumers on their scooter.

See link to dimensions for public transport usage

[Mobility aid specifications - Public Transport Victoria](#)

Please see link to mobility engineering

[Q&A #002 - Transporting in Scooters V Wheelchairs](#)

2. Recommendations when assessing capacity to use a scooter

- *Obtaining medical clearance:* signed clearance from GP to state the consumer has no medical conditions which impact on their capacity to operate a scooter.
- *Vision:* As per wheelchairs there are no set standards. However, for a driver's license a person must have a visual acuity of 6/12. If you have any concerns regarding a consumer's vision, this should be referred for an assessment by an optometrist. Visual fields should be assessed.
- *Cognition:* Attention, visual and verbal memory and relearning capacity are important to consider.
- *Trial and follow-up training:* A trial should be completed around the home environment and local area.
- Training should be provided on delivery of a scooter if a consumer has not used a scooter before.
- *Storage:* SWEP requires the consumer to have accessible and appropriate storage and a power point to recharge scooters prior to the scooter being funded.

Recommended Assessments and Considerations for Wheelchair and Scooter Prescription

The list of measures and assessments that appear here is not exhaustive but represents valid and useful measures that will assist in the prescription process. A thorough assessment is required to enable the wheelchair supplier to have adequate information to inform the choice of product for trial in consultation with the practitioner.

The roles and skill set of the supplier and prescribing therapist are different and complementary.

Practitioner role: involves a thorough knowledge of the consumer's diagnosis, physical status, environment, personal preferences, and past use of AT

Supplier role: involves matching the provided consumer characteristics with products, product knowledge, technical knowledge and ability to set up the AT as required.

The assessment should take into consideration:

- Consumer Characteristics – physical & functional
- Support person characteristics
- Satisfaction and goals
- Environment assessment

Consumer Characteristics

1. Physical

Physical assessment includes an understanding of the past and current medical history, diagnosis and potential for progression or change.

Physical Assessment will include a Mechanical Assessment Tool (MAT). Refer to the link below for a MAT example that practitioners can use.

[Module 3 - Hands-on assessment | Agency for Clinical Innovation](#)

A MAT includes the assessment of:

- Range of Movement
- Spasticity (Ashworth Spasticity Scale or the Tardieu Scale)
- Muscle strength
- Pain
- Balance – sitting, and if relevant standing balance
- Body anthropometrics (weight, height, limb length, body segment measures)
- Pressure care and skin integrity including past and present pressure issues and risks for skin integrity issues

- Function including transfers, alongside upper and lower limb function

This is a thorough hands-on physical assessment, which is ideally a joint assessment between the Occupational Therapist and Physiotherapist yet may require input from other disciplines.

These disciplines may include but is not limited to:

- Prosthetist and Orthotist for splinting requirements
- Continence nurse for bowel and bladder,
- Wound specialist for pressure injury management
- Speech Pathologist for saliva swallowing and aspiration management
- Rehabilitation consultant for spasticity management

The success of the Wheelchair prescription can be greatly affected by the involvement of other specialists as appropriate to the individual. Surgery may be planned up to 1-2 years in advance, hence it is essential that any future medical plans are known and allowed for as required.

As a result of the MAT assessment, it may be apparent that referral to other specialists is required, and this can be via the public or private system.

Other factors impacting the wheelchair prescription may include

- Bowel and bladder function
- Sensation
- Injury risk
- Hand dominance
- Vision
- Cognition
- Safety
- Interactions with other AT such as beds, hoists and vehicles
- Carer requirements

Bariatric consumers require special considerations. Please refer to the link below for seating considerations for bariatric consumers.

[ILR Rehab Business Development](#)

2. Function

An important aspect of wheelchair prescription is to enable the person to participate in everyday activities and maximize their potential and participation. It is necessary to consider all issues that may impact on obtaining the correct wheelchair prescription for the consumer.

These may include:

- Home Environment
 - An assessment of the home environment with consideration to:
 - access inclusive of bedroom, bathroom and toilet, door width, and circulation space.
 - wheelchair trial within the home. This is essential for new wheelchair users or when there are significant changes to the wheelchair prescription.

- Transfers with assessment of:
 - seat to floor height
 - transfer equipment used
 - degree of independence of user

- Contenance with consideration of:
 - accessing a urinary bottle
 - changing requirements
 - continence covers
 - pressure care

- Involuntary movements inclusive of spasticity, dystonia, startle reactions and ongoing reflexes (e.g., asymmetrical tonic neck reflex) with consideration to:
 - ability to drive safely
 - comfort and support
 - movement patterns and ability to remain or return to supported seating

- Cognition with assessment of:
 - planning
 - insight
 - perception,
 - behavioral issues

- Communication with consideration of:
 - methods of communication
 - provision of the required time and AT to engage in the process
 - signs of pain or discomfort.
 - communication device mounting system or requirement for a tray

- Mealtime with consideration of:
 - naso-gastric feed poles
 - tray
 - appropriate head support and potential need for alternate head support for mealtimes
 - consideration of safe tilt in space angle which may involve some degree of tilt

- Medical requirements with consideration to weight and access to items such as:
 - oxygen
 - suction

- Vision: There is no set vision standard for operating a powered wheelchair or scooter. However, it is necessary to assess visual acuity and visual fields. The standard requirement for visual acuity for driving a vehicle is that a person's vision needs to be equal or better than 6/12 with both eyes together. [Vision and driving 26719 PRS - PDF.pdf](#)

- Consider gaining clearance from the individual's GP.

- Participation is inclusive of school activities, mealtimes, sports, home, community and work.

- Transport with consideration of:
 - type of transport to be used (e.g., maxi taxi, car, van, public transport)
 - entry height
 - space within vehicle (width, length and need for additional passengers)
 - head clearance within the vehicle.
 - Tie downs or docking station
 - type of folding mechanism, weight, quick release products and how easily chair can be taken apart if required.
 - crash testing status of chair / product
 - lifts, hoists and trailers for vehicles

3. Support Person Characteristics

Safety, abilities and needs of family members and support workers require consideration in the wheelchair prescription process.

Assessment may include review of:

- sustained or repetitive postures
- awkward postures
- consumer behaviours
- carer/family's physical and cognitive status
- weight of wheelchair frame and components
- ease of operating power and power assist devices

4. Environment assessment

- consideration of the physical, social, cultural and institutional environment will involve factors such as:
 - working space
 - type of surface, e.g., smooth flooring, carpet, gravel, grass
 - gradients of areas likely to be accessed e.g., driveway, access ramps, local terrain etc.

5. Further considerations

Centre of gravity - Attention needs to be given to stability versus maneuverability. In summary,

- stability is decreased when the rear wheels are placed further forward on the frame and maneuverability is increased. This moves the COG forward and the chair is more likely to tip backwards, especially on inclined surfaces.
- conversely when the rear wheels are placed further back on the frame the chair will be more stable and less maneuverable.

Some of the factors that need to be taken into consideration are:

- skill of the user if self-propelling, e.g., ability to perform a wheelie
- weight, height, strength of the user
- additional equipment and baggage on the chair
- behavioral considerations such as rocking
- risk of shoulder injury
- a different cushion will alter the COG
- position of the front castors during independent transfers and impact on stability

Centre of gravity and tippiness of the wheelchair should be assessed upon supply as an important safety consideration and adjusted accordingly. A new user may start with a stable chair and have the COG readjusted over time as their skills increase. Check that this is possible with the prescribed chair if required.

This is an essential aspect to the assessment, prescription and trial process alongside requiring review following changes in associated AT such as the cushion or a change in the user (skill, weight, posture, etc.).

Greater detail can be obtained from the links below.

[Centre of Gravity and Manual Wheelchairs | Sunrise Medical](#)
[wheelchair centre of gravity adjustment | National Seating & Mobility](#)

6. Satisfaction and Goals

Assessment of satisfaction and goals can be completed objectively through the use of standardised assessments such as the Wheelchair Outcome Measure (WhOM) or Goal Attainment Scale (GAS) and ensure the opinions and needs of the consumer, carers, family and involved institutions are considered. Satisfaction with the current wheelchair is important in the new prescription with consideration of what is working well and what could be improved upon.

Post supply assessment will ensure goals are met.

Satisfaction and goals should take into consideration all the above aspects of the wheelchair prescription assessment process inclusive of:

- Consumer Characteristics – physical & functional
- Support person characteristics
- Environment assessment

7. Outcome Measures and Assessment tools

Resources and information regarding cerebral palsy

[My CP Guide | Cerebral Palsy Australia](#)

Wheelchair Outcome Measure (WhOM):

<https://millerresearch.osot.ubc.ca/tools/mobility-outcome-tools-2/the-wheelchair-outcome-measure-whom/>

Wheelchair mobility assessments:

<http://millerresearch.osot.ubc.ca/tools/mobility-outcome-tools-2/>

[Using the PoMoDATT – Powered Mobility Device Assessment Training Tool](#)

Wheelchair Skills Program WSP (including wheelchair skills test, WST)

<http://www.wheelchairskillsprogram.ca/eng/4.1/WSTPManual4.1.35.pdf>

Mechanical Assessment Tool

[Module 3 - Hands-on assessment | Agency for Clinical Innovation](#)

Bariatric Assessment Tool

[ILR Rehab Business Development](#)

Postural Assessment Tool (Goldsmith Indices of Body Symmetry)
[Measurement of Body Symmetry – Simple Stuff Works](#)

Also consider assessments of issues such as pain and fatigue as relevant to the consumer's goals for the prescription.

Additional Resources

Australian Rehabilitation & Assistive Technology Association (ARATA)
[Home](#)

Assistive Technology Suppliers (ATSA) - <https://atsa.org.au/>

Rehabilitation Engineering and Assistive Technology Society of North America (RESNA)

[RESNA > About](#)

Consumer Resource

<https://www.vicroads.vic.gov.au/safety-and-road-rules/pedestrian-safety/motorised-mobility-devices>

Practitioner Resource

<https://otaus.com.au/practice-support/areas-of-practice/motorised-mobility-devices>

Public Transport Victoria. This includes information on using mobility aids on public transport.

<https://www.ptv.vic.gov.au/more/travelling-on-the-network/accessibility/wheelchair-access-and-mobility-requirements/>

Refer to SWEP website for updates on current equipment

[Home Page | SWEP](#)

Standards

The following standards have been published by the International Standards Organisation (ISO) pertaining to wheelchairs

<https://www.iso.org/committee/53792/x/catalogue/>

The link below pertains to an extensive clinical guide and is divided into five chapters with five appendices. The first chapter is an introduction, which includes an explanation of the concepts that provide a foundation for understanding the measures included in this manual. Chapters 2 through 5 include a comprehensive selection of the measures defined in the standard, categorized as either a body measure or a support surface measure.

[GuidetoSeatingMeasuresRevisedEdition_November2013-compressed.pdf](#)

Summary

The role of the practitioner is first and foremost to complete a thorough assessment as detailed above.

To maximise success and efficiency of the trial process the practitioner should provide the supplier with details of the assessment prior to the appointment. This includes the aims of the prescription and consumer goals as this may greatly influence the product choice for trial.

Contract/Tender Details

After a rigorous and robust evaluation process, SWEP has contracted suppliers for a wide range of Assistive Technology. This has ensured that the equipment selected has been certified under the relevant Australian Standards, meets the specifications required by our consumer group and has been secured at the best value for money.

SWEP have a Contracted Item catalogue on our website, which contains all items listed by category, with a product brochure link, specification and relevant information. You can access the catalogue here:

<https://swep.bhs.org.au/picklists-catalogue.php>