



Power Wheelchairs

Supporting Evidence for Clinical Reasoning

The successful wheelchair provision process is not simply assessment followed by prescription.

Rather, it's a multi-stepped process which requires many considerations²¹. To achieve optimal seating and mobility for the individual, these steps include:

1. Referral;
2. Assessment;
3. Equipment Recommendation and Selection;
4. Funding procurement;
5. Product Preparation;
6. Fitting, Training and Delivery;
7. Maintenance and Repair; and
8. Outcome Measurement ²¹.

Step four can sometime feel like barriers to your client receiving appropriate equipment. To overcome these hurdles, it is important to provide evidence based clinical reasoning and justification to support your recommendations. This document is intended to provide this support during your equipment trial process.

	FEATURE	POTENTIAL HEALTH AND WELL BEING BENEFITS *	EVIDENCE
Base	Front wheel	<ul style="list-style-type: none"> • Stable base • Performs well when driving over soft terrain, grass, uneven gravel or climbing curbs • Legs can be “tucked back” <ul style="list-style-type: none"> ○ due to front castor position ○ improved proximity to work surfaces for functional / daily tasks and helpful in environments with reduced space ○ beneficial for individuals with tight hamstrings 	13, 14
	Mid wheel	<ul style="list-style-type: none"> • drive wheel placement allows for the tightest turning radius when completing a 360° turn • Front and rear casters position help provide a stable base • intuitive to drive since the user’s centre of gravity is directly over the drive wheel 	13, 14
	Rear wheel	<ul style="list-style-type: none"> • very stable base anteriorly – • Good performance in rural settings / rougher terrain • More intuitive / easier to drive for attendant carers due to the position of the drive wheels in relation to the position of the controls 	13, 14
	Hybrid	<ul style="list-style-type: none"> • Driving performance of rear wheel with smaller turning radius • Longer turning radius because of the base length - intuitive to drive 	14
	4 x 4	<ul style="list-style-type: none"> • Facilitates access to off-road environments for recreation and vocational use, active urban use, rural properties and country roads – • potential reduction of injury and accident when driving through environmental barriers ⁹ • rugged design to protect from damage in challenging environments 	1
	Kerb climber	<p>Function Accessibility</p> <ul style="list-style-type: none"> • potential reduction of injury and accident when driving through environmental barriers ⁹ • Improved independence through reduction of physical barriers in the community 	9
	Suspension	<p>Medical Function</p> <ul style="list-style-type: none"> • Vibration reduction <ul style="list-style-type: none"> ○ reduces spasms activated by shocks ○ reduces pain symptoms ○ reduces risk of secondary injuries (low-back and neck pain, muscle ache and fatigue) ¹⁰ ○ psychological symptoms from impact of vibration ²⁵ • Increased sitting tolerance <p>Function Accessibility</p> <ul style="list-style-type: none"> • assist with control of driving input in clients with weakness or motor control issues. 	10, 11, 25, 26

	Steering lock	Safety Accessibility <ul style="list-style-type: none"> keeps the chair on track when traversing rough terrain, kerb climbing and steep inclines assists to safely negotiate reversing from vehicles 	
	Wheelchair lock	Safety <ul style="list-style-type: none"> disables the chair - helpful if stored in common areas, or for users who have small children. 	
	Scooter stopper	Safety <ul style="list-style-type: none"> Remote stopping control for carers to disable power of chair for safety – useful in busy areas or where traffic may be present 	
	Stability wheels / roller	Safety Accessibility <ul style="list-style-type: none"> measures your angle of tilt relative to a flat surface – when individual mobilizes at an unsafe angle it will not drive, preventing injury to person and property 	
	Stability roller	Safety Accessibility <ul style="list-style-type: none"> Improves wheelchair's stability on inclines, reducing the risk of tipping Allows individual to safely manage variable terrains in the community 	
	Tyres	Puncture protection kit	Safety Support reduction Accessibility protects against damage from sharp objects (glass, thorns etc) - reduced maintenance – reduced cost in chair maintenance or replacement tyres, individual can repair in real time and reduce service costs / cost of tyre
		Solid	Safety Support reduction Accessibility no punctures to tyres but a “rougher” ride
		Pneumatic	Accessibility Medical smooth ride, shock absorption which may reduce spasms and pain symptoms, good traction for most surfaces - improved accessibility in local environment - improved independence as a result to reduced pain
		Off-road	Accessibility 14” knobby tyres for traction and comfort when off-road. Easily adjustable pressure when required
		<u>Hybrid</u> -	Support reduction Accessibility allows mobility across environments – both indoor and more outdoor settings. Useful for clients that travel over varied surfaces but are unable to change tyres/wheels to suit each surface type.
	Docking station	Support reduction Accessibility <ul style="list-style-type: none"> Assists safe securement of PWC when in vehicle. Useful if client needs to be able to secure themselves independently in motor vehicle. Reduces number of transfers Increases access to the community 	

	Retractable docking pin	<p>Accessibility</p> <ul style="list-style-type: none"> Assists client to individual to secure themselves independently in motor vehicle Reduces number of transfers Increases access to the community Crash tested 	
Power Seating / Positioning	Lift	<p>Function Participation Capacity Building Support reduction Safety</p> <ul style="list-style-type: none"> Facilitates reach biomechanics, safety and range thereby increasing performance and participation Improves transfer biomechanics, safety and independence Enhances visual orientation and line-of-sight Reduces overuse/ repetitive strain injuries of shoulder and neck by reducing overhead activities Promotes communication, social engagement, self-esteem and integration with peers Improve wheelchair pedestrian safety allows for a variety of attendant carers to support client in personal care, transfers, application of sling etc, reducing the risk of reported OH&S injuries 	2
	MPS seating	<p>Posture</p> <ul style="list-style-type: none"> For individuals with low postural needs and low-pressure risks Choice of fabrics requiring justification in relation to environment, personal needs (continence, saliva, sweating etc) 	
	Rehab seating	<p>Posture</p> <ul style="list-style-type: none"> For individuals with higher postural needs Choice of fabrics requiring justification in relation to environment, personal needs (continence, saliva, sweating etc) 	
	Headrest	<p>Safety Posture</p> <ul style="list-style-type: none"> Essential for transport Required for support including recline & tilt Choice of design requires justification in relation to individual needs 	
	Tilt	<p>Posture Medical Support Reduction Safety</p> <ul style="list-style-type: none"> Provides a change in position for individuals to: <ul style="list-style-type: none"> reduce the risk of pressure injury by redistributing pressure, without shear forces; minimise the risk of extensor spasticity; 	3, 4, 5, 6, 7,17

		<ul style="list-style-type: none"> ○ maintain pelvic, thoracic, head position and/or balance against gravity for prolonged periods of time; ○ reduce the risk of respiratory, digestive, postural hypertension, complications and autonomic dysreflexia complications ○ manage pain and increase seated tolerance ● Fatigue management ● improved access within the community (tilt used when going downhill to better position individual for safety) ● better visual orientation for some individuals ● best results of pressure reduction when tilt and recline used together (25-45° of tilt with 110-150° of recline²) ● critical when combined with recline and elevating leg rests for individuals with amyotrophic lateral sclerosis (ALS/ MND) ⁷ This may be applied to other degenerative neurologic conditions which have similar presentation. ● Tilt and recline technologies can be perceived as a restraint; therapist may need to clarify the concepts of positioning and restraint based on intended purpose and treatment¹⁷ 	
Power seat functions	Anterior Tilt / Transfer tilt	<p>Function Safety Capacity Building Support reduction</p> <ul style="list-style-type: none"> ● Minimises <ul style="list-style-type: none"> ○ risk of falls during a standing transfer ○ risk of increased tone and abnormal reflexes ● Improves <ul style="list-style-type: none"> ○ functional independence through reach¹² ○ safety in meal preparation²² ○ digestion and speech production ● lowers front to seat floor height to facilitate getting under a low table / desk 	12, 22
	Recline	<p>Posture Medical</p> <ul style="list-style-type: none"> ● changes seat to back angle ● best results of pressure reduction when tilt and recline used together (25-45° of tilt with 110-150° of recline²) ● critical when combined with recline and elevating leg rests for individuals with amyotrophic lateral sclerosis (ALS) ⁷ 	2,4, 7, 17

	<ul style="list-style-type: none"> reduction in discomfort / pain from vibration when in a reclined position than in an upright sitting position⁸ when combined with elevating leg rests allows for toileting and peri-care to be completed, reducing transfers during the day shear reduction recline should be used when recline angle is greater than 120 degrees. This will minimize shearing forces and allow position pieces to maintain good posture (laterals, headrest) offers additional skin protection when tile alone is not adequate may assist in the management of spasticity/tone Tilt and recline technologies can be perceived as a restraint; therapist may need to clarify the concepts of positioning and restraint based on intended purpose and treatment¹⁷ 	
Standing	<p>Posture Medical Function Capacity Building</p> <ul style="list-style-type: none"> Improve <ul style="list-style-type: none"> functional reach to enable participation in ADLs circulation passive range of motion independence and productivity psychological well-being Reduce <ul style="list-style-type: none"> occurrence of urinary tract infections (UTIs) abnormal muscle tone and spasticity occurrence of pressure sores occurrence of skeletal deformities Maintain <ul style="list-style-type: none"> vital organ capacity <p>bone mineral density</p>	
Power elevating leg rest swing away	<p>Posture Medical Support reduction</p> <ul style="list-style-type: none"> independently change the leg and/or footrest angle relative to the seat in order to flex or extend the knee effective in managing oedema² critical when combined with recline and elevating leg rests for individuals with amyotrophic lateral sclerosis (ALS) (also known as MND) ⁷ This may be applied to other degenerative neurologic conditions where leg rests need to be out of the way. . 	2, 4, 7
Manual elevating leg	<p>Posture Medical Support reduction</p>	4

rest swing away	<ul style="list-style-type: none"> • Allows carer to change the leg and/or footrest angle relative to the seat in order to flex or extend the knee with minimal lifting • effective in managing oedema² • critical when combined with recline and elevating leg rests for individuals with amyotrophic lateral sclerosis (ALS) (also known as MND) ⁷ This may be applied to other degenerative neurologic conditions which have similar presentation. • individual requires leg rests to be out of the way for safe transfers 	
Centre mount power leg rest	<p>Accessibility</p> <ul style="list-style-type: none"> • allows individual to change the leg and/or footrest angle relative to the seat in order to flex or extend the knee with little or no support from carers • can lengthen and shorten to support functional tasks such as standing transfers or repositioning • May be lengthened (to the floor) or shortened (floor clearance) • effective in managing oedema² • critical when combined with recline and elevating leg rests for individuals with amyotrophic lateral sclerosis (ALS) (also known as MND) ⁷ This may be applied to other degenerative neurologic conditions which have similar presentation. 	
Centre post Footrest/ foot support	<p>Posture</p> <ul style="list-style-type: none"> • Individual requires simple support of the lower limbs 	
Swing away leg rest	<p>Accessibility</p> <ul style="list-style-type: none"> • reduces risk of falls if undertaking a standing transfer 	
Footplates	<p>Posture Accessibility</p> <ul style="list-style-type: none"> • 1 piece flip up – individual requires flip out of the way for transfers or improved accessibility • 2 piece flip up - individual requires flip out of the way for transfers or improved accessibility or when two sides need to be a different height • 1 piece fixed – individual requires 1 piece footplate for proper lower limb support and protection, appropriate for clients with increased tone and spasticity who press through feet for positioning or behaviours • individual requires 2 piece footplate for proper individual right and left lower limb support and protection, appropriate for clients with increased tone and spasticity who press through feet for positioning or behaviours 	

	Made to order options will require additional justification in relation to clients' individual needs such as fixed foot deformities and skin protection	
Lower limb positioning	<p>Posture</p> <ul style="list-style-type: none"> • Requires foot straps, calf straps heel loops, ankle supports and knee pads for proper lower limb positioning, postural support and safety • anterior, lateral and medial positioning supports to optimise function, posture and skin protection for lower limbs • prevents loss of foot support which can lead to sliding and shearing forces – or loss of correct posture support and safety 	
Foot plate modifications	<p>Posture</p> <ul style="list-style-type: none"> • Requires individualised foot plate edges, or footplate covers to optimise foot position, skin protection, seating tolerance and comfort <p>Made to order options will require additional justification in relation to clients' individual needs such as fixed foot deformities and skin protection</p>	
Arm rests	<p>Accessibility Posture Safety</p> <ul style="list-style-type: none"> • Flexi arm rest <ul style="list-style-type: none"> ◦ Ease of side transfers, reduced effort of support person to access individual for personal care or positioning a sling in preparation for hoist transfer ◦ offers various heights and angles for different positions and independence – • With Locking feature <ul style="list-style-type: none"> ◦ safe use for individuals that pull on arm rest for position change • With locking post feature <ul style="list-style-type: none"> ◦ safe use for individuals that heavily pull on arm rest for position change • With locking post and drop-down feature <ul style="list-style-type: none"> ◦ safe use for individuals that heavily pull on arm rest for position change who need armrest to get out of the way to access table surfaces • Standard <ul style="list-style-type: none"> ◦ arm support, pressure relief, transfer assistance • double stem <ul style="list-style-type: none"> ◦ arm support, pressure relief, transfer assistance for heavy user / bariatric client 	
Arm pad	<ul style="list-style-type: none"> • Justification required for pad size and material type ie paralysed arm support and skin protection needs 	
Lap belt	Posture	17

		<ul style="list-style-type: none"> • Standard – individual requires simple pelvic support • 4 point - individual requires multi directional support at the pelvis for positioning • Retractable – individual requires simple pelvic support with easier access for those with limited hand function • Bodypoint – individual requires specific pelvic control for positioning • Secondary support components may be perceived as a restraint; therapist may need to clarify the concepts of positioning and restraint based on intended purpose and treatment¹⁷ 	
	Postural / secondary trunk and pelvic supports / accessory mount	<p>Posture</p> <ul style="list-style-type: none"> • Requires anterior, lateral and medial positioning supports to optimise function, posture and skin protection • Reduces risk of atypical postural deformities, which can lead to secondary complications 	
	Forward fold backrest	<p>Accessibility</p> <ul style="list-style-type: none"> • Assists to reduce the height of the chair, enabling it to be transported in unmodified vehicles 	
	Therapy Tray / Upper Extremity support surface	<p>Posture Accessibility Capacity Building Participation</p> <ul style="list-style-type: none"> • Allows client to carry out daily tasks such as eating, reading, and using mobile devices whilst in their wheelchair • postural support for individuals with reduced trunk control from fatigue to facilitate upright posture / eye contact and participation • used to transport / carry objects / participate in activities without sourcing a separate height adjustable table surface 	
Power seat function controls	Control+5	<p>Accessibility Function Participation Safety</p> <ul style="list-style-type: none"> • Individuals requires separate panel for independent use of power seat function and is unable to use joystick for management 	
Driving controls	Joysticks	<p>Accessibility Function Participation Safety</p> <ul style="list-style-type: none"> • LED – no screen • LCD – smaller colour screen • CJSM2 – bigger screen and light sensitive for those with visual issues and or working in different lights – requires environmental control through their joystick • Swing back - individual requires joystick to move out of the way for transfers and access to table surfaces • Stem options standard - individual requires no height adjustment for joystick 	



		<ul style="list-style-type: none"> • Stem option height adjustable – individual requires joystick to be at a particular height for access and safe control • Stem option quick release – individual requires joystick to be quickly removed from driving position during transport for safety and accessibility • Additional justification will be required to justify individual's ability to best access control power seat functions • Additional justification for different joystick knobs are required due to reduced finger control, grasp etc. 	
	Specialty controls	<p>Accessibility Function Participation Safety</p> <ul style="list-style-type: none"> • Individual requires driving device other than standard joystick due to poor hand control, poor motor control, reduced range of motion or reduction upper limb strength. • Individual requires prescribed device to be safe management the wheelchair 	
Lifestyle	Accessory charger	<p>Accessibility Function Participation Safety</p> <ul style="list-style-type: none"> • Allows individual to access readily available power source for communication (telephone, tablet etc) • may be beneficial in emergency situations should the power chair break down in the community. • Medical conditions need to be considered if this item is not funded • Yes, item may be a “customary / standard” item used by the general population, however, an able-bodied person does not rely on a power wheel chair for mobility • Consider access to power points in the community with a PWC (accessing power points under tables or hard to reach places) 	
	Fishing rod holder	<p>Capacity Building Participation</p> <ul style="list-style-type: none"> • Allows individuals who are active in this recreational activity to carry their own equipment in order to participate 	
	Luggage rack	<p>Function Participation Capacity Building Support reduction</p> <ul style="list-style-type: none"> • Allows individuals with disabilities to carry additional items such as continence products, medications, tubing etc for health maintenance, bladder management and respiratory issues 	
	Accessory bag	<p>Accessibility Safety</p> <ul style="list-style-type: none"> • Enables personal items and or consumables (such as incontinence products, oxygen or suction tubing etc) to be within easy reach • Allows individuals with disabilities to carry additional items such as continence products, medications, tubing etc for health maintenance, bladder management and respiratory issues 	
	Bag hook	<p>Function Participation Capacity Building Support reduction</p>	

	<ul style="list-style-type: none"> Allows individuals with disabilities to carry light weight belongings with little to no support as they are required to have access to additional items such as continence products, medications, tubing etc for health maintenance, bladder management and respiratory issues 	
Tablet / phone holder	<p>Accessibility Function Capacity Building Safety</p> <ul style="list-style-type: none"> Essential for individuals with reduced hand function to hold item for use Stabilises tablet / phone for voice or hand access for use whilst mobilising Safety when individual is using one hand to control the PWC Safe storage and use if individual is unable to independently or efficiently retrieve from a bag 	
Cupholder	<p>Accessibility Function Safety</p> <ul style="list-style-type: none"> stabilises drink whilst driving to avoid spillage helpful for individuals with reduced hand function Reduces risk of potential burns from hot drinks spilling onto skin, especially for those individuals with reduced sensation 	
Ventilator Tray / Oxygen Tank Holder	<p>Medical</p> <ul style="list-style-type: none"> Necessary to hold essential equipment for individuals who either breathe by mechanical assistance or may need to do so in the future. 	
Transit Tie Down points	<p>Safety Accessibility</p> <ul style="list-style-type: none"> Essential to reduce the risk of serious injuries to wheelchair-seated occupants involved in frontal collisions (ISO 7176-19 or WC19 / 20) necessary for anyone who transports their chair in a moving vehicle 	
Lights	<p>Safety Accessibility</p> <ul style="list-style-type: none"> important for individuals to see their surroundings important for vehicles or pedestrians to see wheelchair and individual in low light / night time 	27
Jack	<p>Safety Accessibility</p> <ul style="list-style-type: none"> Required when changing from one wheel type to another when required for safe navigation in different terrains/activities Light weight and can be carried when mobilising off-road allows for independent and efficient tyre changes in the community 	
Camera mount	<p>Accessibility Function Capacity Building</p> <ul style="list-style-type: none"> Allows individuals who are active in this recreational activity to carry their own equipment in order to participate - fitted to chair or seat armrest for easy access 	
Sunshade	<p>Medical Accessibility</p> <ul style="list-style-type: none"> Protects individual from the sun and harmful UV rays essential for individuals who are prescribed medication which is deemed harmful to sunlight essential for individuals who have a diagnosis of skin cancers 	



***This document is intended as a guide only. It is the responsibility of the prescribing clinician to determine criteria that is reasonable and necessary for their client, taking into consideration their individual needs. The information contained in this document has been produced in good faith and is based on best available evidence.**



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