

# Summary of the guidelines

for the prescription of  
a seated wheelchair or  
mobility scooter for people  
with a traumatic brain  
injury or spinal cord injury



Health  
Support Services  
EnableNSW

## **Summary of the guidelines for the prescription of a seated wheelchair or mobility scooter for people with a traumatic brain injury or spinal cord injury**

This publication is endorsed by Occupational Therapy (OT) Australia – NSW Division

You may copy, distribute, display and otherwise freely deal with this work for any purpose, provided that you attribute the LTCSA and EnableNSW as the owners. However, you must obtain permission if you wish to (1) charge others for access to the work (other than at cost), (2) include the work in advertising or a product for sale, or (3) modify the work.

ISBN: 978-1-921422-20-1

Suggested citation:

EnableNSW and Lifetime Care & Support Authority, *Summary of the guidelines for the prescription of a seated wheelchair or mobility scooter for people with a traumatic brain injury or spinal cord injury*.  
EnableNSW and LTCSA Editor, 2011, Sydney.

For further copies

Email: EnableNSW [enable@hss.health.nsw.gov.au](mailto:enable@hss.health.nsw.gov.au) Lifetime Care [enquiries@lifetimecare.nsw.gov.au](mailto:enquiries@lifetimecare.nsw.gov.au)

Internet: EnableNSW <http://www.enable.health.nsw.gov.au/publications>

LTCSA <http://www.lifetimecare.nsw.gov.au/Resources.aspx>

© EnableNSW and Lifetime Care & Support Authority 2011

# Background and method

A wheelchair or scooter that is poorly matched to an individual's needs adversely affects their potential, participation, lifestyle goals and health status. The *Guidelines for the prescription of a seated wheelchair or mobility scooter for people with a traumatic brain injury or spinal cord injury* have been developed using a rigorous methodology of searching for, appraising and grading the research evidence in conjunction with a working party. The guidelines are intended to inform and guide the therapist on clinical actions and decisions, but do not replace the need for clinical reasoning, judgement and/or supervision.

It is intended that prescribers of wheelchairs use this summary of recommendations as a quick reference in conjunction with the complete guidelines and resources.

**Table 1 Grade of recommendation**

Grade of recommendation	Description (more detail is provided in the guidelines and technical report )
A	Body of evidence can be trusted to guide practice.
B and B <sup>o</sup>	Body of evidence can be trusted to guide practice in most situations.
C and C <sup>o</sup>	Body of evidence provides some support for recommendation but care should be taken in its application to individual clinical and organisational circumstances.
D	Body of evidence is weak and recommendation must be applied with caution.
Consensus	Consensus based recommendation.
Principle	Provides a standard required for a best practice therapy intervention.
Requirement	Guided by a legal requirement, regulation or rule established by a statutory authority.

## List of resources

The complete checklists are in the full guidelines or can be downloaded separately on the internet. The checklists are referred to in some of the recommendations.

- Goals checklist
- Shoulder injury risk management strategy
- Long-term need checklist
- Training topics checklist
- Injury prevention during transportation checklist
- Maintenance checklist
- Wheelchair comfort tool
- Internet-based education and information

# Summary of recommendations

## 1. Framework and approach

Recommendations	Grade
<p>1. The therapist should adopt the following fundamental principles:</p> <ul style="list-style-type: none"> <li>• Individually assess the prospective user's functioning and consider their personal variables such as age, goals, personality, co-morbid conditions and environment.</li> <li>• Involve the user and relevant others such as family in decisions throughout the prescription process.</li> <li>• Apply clinical reasoning at every stage of the intervention.</li> <li>• Use research evidence to guide reasoning and decisions.</li> <li>• Keep appropriate records of the intervention, including goals agreed with the user, joint assessments and outcomes.</li> <li>• Consult with other specialists where appropriate about specific issues, for example seating specialists or speech pathologists. This could include occupational therapists and physiotherapists consulting each other on different areas of expertise, or consulting medical specialists about future medical conditions or procedures which might affect choice of wheelchair features.</li> <li>• Ensure that they seek professional supervision commensurate with their skills and experience.</li> <li>• If seeking funding for the wheelchair or scooter, the therapist must meet the relevant qualifications and experience required by the funding body.</li> </ul>	Principle
<p>2. The therapist should consider any additional issues, potential disadvantages or need for additional resources (such as an interpreter) for the client and their family if the client is of Indigenous (Aboriginal or Torres Strait Islander) heritage or from a culturally and linguistically diverse or non-English speaking background.</p>	Principle
<p>3. The therapist must ensure that clinical decisions made throughout the prescription process are ethical.</p>	Principle
<p>4. The prescription of a wheelchair or scooter should include the development of client goals in partnership with the client and relevant others (e.g. family).</p>	Principle
<p>5. The therapist should use an appropriate outcome measure at baseline or assessment and at other stages during the prescription of the wheelchair or scooter to measure change and the user's progress towards the goals.</p>	Principle

## 2. Assessment and review

Recommendations	Grade
6. Assessment for the prescription of a wheelchair or scooter should occur when the client is medically stable, although the review continues beyond that time.	Consensus
7. The therapist should obtain information on the home environment and surrounds as a key component of the assessment and prescription of the wheelchair or scooter.	Consensus
8. The assessment for the prescription and review of the wheelchair or scooter should continue throughout the recovery period, once all the ICF domains have been evaluated and relevant goals established.	Consensus
9. Assessment for the prescription of a wheelchair or scooter should include trials for an adequate period while performing activities in environments that are usual and relevant to the client and their attendant care worker (including the home environment or similar and surrounds, and anticipated modes of transport).	Consensus
10. The seating system needs to be integrated with the wheelchair and should be assessed with consideration of the goals and contextual factors.	Consensus
11. The therapist should consider referral of a patient with complex postural needs to a specialist (interdisciplinary) seating team who have expertise in specialist seating and work alongside the prescribing therapist. This could be through face-to-face consultation or other media (e.g. teleconference and photographs, video conference).	B <sup>o</sup>
12. For clients with complex impairments of body function and structure, it may be appropriate to identify the seating system prior to the wheelchair.	Consensus
13. If the wheelchair seating system is identified first, it needs to be further evaluated and trialed in conjunction with the wheelchair.	Consensus
14. The client's goals should be reviewed at three months and twelve months following supply of the wheelchair or scooter, preferably face-to-face and at a minimum via phone contact.	Consensus
15. The therapist should consider the need for adjustable features in the wheelchair when there are anticipated or expected user changes. Adjustable features of the wheelchair include seat height, back rest angle and height, width, axle position, adjustable footplates and a range of other set up features.	Consensus
16. The factors identified in research related to non-use of provided assistive technology should be considered by the therapist during the wheelchair prescription process, as these may influence the outcomes (refer to the factors listed in the guidelines).	B <sup>o</sup>

### 3. Capacity and performance

#### Making decisions

Recommendation	Grade
17. When a client has reduced capacity to be involved in and/or make decisions about the wheelchair or scooter, the therapist should ensure that adequate discussion has occurred with the client's relevant others (e.g. family or guardian with specific functions) prior to the decisions on the device being finalised. In some instances there may be a trade-off between client choice and what is feasible.	Principle

#### Psycho-social and behavioural

Recommendations	Grade
18. The therapist should consider a person's behaviour, psychological status and risk of causing harm to themselves or others prior to and during the trial of a powered wheelchair or scooter.	Consensus
19. The therapist should consider consulting with a suitable health professional (e.g. clinical psychologist) to develop a behavioural support plan for users with challenging behaviours impacting on safe use of a powered wheelchair or scooter.	Consensus

#### Cognition and perception

Recommendations	Grade
20. The therapist should consider the client's cognitive and perceptual skills prior to and during the trial of a wheelchair or scooter. For example: judgment, attention, decision making, speed of information, processing, planning, problem solving, memory and level of arousal.	Power wheelchairs C <sup>q</sup> Manual wheelchair, one-arm drive or power-assist Consensus

21. The therapist should design an initial trial of the wheelchair or scooter which accommodates a client's cognitive and perceptual deficits and aims to provide a positive and safe experience for the client.	Powered wheelchair C <sup>o</sup> Manual wheelchair, one-arm drive, power-assist Consensus
22. If the user displays cognitive and/or perceptual deficits they should participate in graded and repeated trials of a wheelchair or scooter. Trials can be graded in terms of environment, time spent in chair, speed of powered chair and equipment features and configuration.	Powered wheelchair C Manual wheelchair Consensus
23. The user should demonstrate (observational assessment) safe use of the wheelchair or scooter in their anticipated physical and social environments prior to prescription of the power wheelchair or scooter.	Consensus
24. Where a user does not have the cognitive or perceptual capacity to independently operate a powered wheelchair over different environments or an extended period of time, controls for the attendant as well as the client should be considered.	Consensus

## Sensory impairments

Recommendations	Grade
25. The therapist should assess that a person using a powered wheelchair in the community is able to identify obstacles and avoid collisions, judge speed, distance and react quickly.	Requirement
26. A client who will be using the wheelchair or scooter <b>on a road</b> without supervision and who has or is suspected of having visual field and/or visual acuity impairments, should be referred for assessment by an appropriate professional, according to the Roads and Traffic Authority (RTA) Guidelines for private vehicles. This applies to manual or powered wheelchairs and scooters.	Consensus
27. The client should be trained to use compensatory techniques, where the client has an identified visual field or acuity deficit below that specified by the RTA. After training on compensatory techniques, their safety to use the device on the road should be reviewed in the environment the device will be used.	Consensus
28. The therapist should consider referral to other specialist services (e.g. optometrist, ophthalmologist, audiologist, mobility trainers) where a vision or hearing impairment is identified.	Consensus
29. When a client experiences a change in their vision or hearing and adopts compensatory techniques, their capacity to use the wheelchair or scooter should be reviewed in the environment where the device will be used.	Consensus

## Upper limb capacity and risk of injury

Recommendations	Grade
30. The therapist should take into account the user's upper limb strength and the factors that influence strength demands to propel a manual wheelchair. The user needs to have the ability to put force through shoulder flexion with elbow extension over different terrains for prolonged periods, without significant fatigue.	B
31. Therapists should take into account the user's upper limb range of motion, and the factors that influence the range of motion demands for manual wheelchair propulsion. Factors that may influence the user's range of motion demands include wheelchair width and weight, wheelchair seat height, axle position and fatigue.	B
<p>32. Potential scooter users are to refer to the Motorised Wheelchair Safety Handbook (RTA).</p> <p>The handbook recommends that scooter users require the following:</p> <ul style="list-style-type: none"> <li>• the ability to manipulate controls, e.g. turn a key, adjust dials, use the accelerator</li> <li>• the ability to steer and turn, even in tight corners</li> <li>• the ability to turn the head to look to the side or behind if reversing</li> <li>• the ability to maintain balance when travelling across uneven or rough terrain</li> <li>• the ability to adjust body position when travelling up or down inclines</li> <li>• the ability to handle different weather conditions and long distances</li> <li>• the ability to be seated for extended periods</li> <li>• the ability to stand and walk short distances if required to leave the scooter.</li> </ul>	Requirement
33. When prescribing a self-propelled wheelchair the therapist should aim to minimise the risk of upper limb injury by taking into account the risk factors (as listed in Table 2 of the full guideline) and risk management strategies (refer to the <i>Shoulder injury risk management strategy checklist</i> ).	Consensus
34. The therapist should educate the wheelchair user and their attendant care worker about the risks of upper limb pain and injury, means of prevention and risk minimisation (refer to the <i>Shoulder injury risk management strategy checklist</i> ), treatment and the need to maintain fitness.	Consensus
<p>(adapted from Consortium for Spinal Cord Medicine, <i>Preservation of upper limb function following spinal cord injury: A clinical practice guideline for health-care professionals</i>, National Guideline Clearinghouse, Editor 2005, Paralyzed Veterans of America.)</p>	

## Cardiovascular fitness

Recommendation	Grade
35. The therapist should encourage wheelchair users to maintain fitness through regular daily or weekly moderate aerobic (endurance) exercise.	B

## Alcohol, prescribed medications and illicit drug use

Recommendations	Grade
36. The user and attendant care worker should be informed that alcohol, prescribed medications (where relevant) and illicit drugs may impact on their capacity to operate a wheelchair or scooter.	Consensus
37. A user of a motorised wheelchair or scooter must be aware that it is an offence to use the device on a road or related areas if their blood alcohol level is 0.05 or more.	Requirement
38. The user and attendant care worker should seek medical advice on how medication or a change in medication impacts on their capacity to operate a wheelchair or scooter.	Consensus

## Long-term need

Recommendation	Grade
39. The therapist should consider the range of factors listed in both the <i>Long-term need checklist</i> and <i>Goals checklist</i> to assist in the determination of the need for a wheelchair or scooter in the long term.	Consensus

## Health and safety

Recommendations	Grade
40. There should be a risk assessment conducted on the tasks performed by the user/ occupant and their attendant care worker with respect to all aspects of the use of the wheelchair.	Requirement
41. Risks should be eliminated or appropriate controls should be implemented where risks are identified.	Requirement
42. The manual handling demands and potential risks should be considered during the prescription process with respect to the features of the wheelchair, the client, attendant care workers, other equipment and the interface with the wheelchair (e.g. hoist, bed), together with the user's anticipated activities in the possible environments.	Principle

## 4. Wheelchair features

### Pressure management

Recommendation	Grade
43. Therapists should refer to existing guidelines on pressure management and ulcer prevention for people with spinal cord injury. The seating systems should be prescribed on the basis of individual considerations and assessment. The existing guidelines on pressure management are considered relevant to people with traumatic brain injury.	Consensus

### Ride and comfort

Recommendations	Grade
44. The therapist should consider any or all of the following features when considering and evaluating the wheelchair for sitting and ride comfort: <ul style="list-style-type: none"> <li>• personal factors (e.g. adjustment to disability, perception of comfort, body shape, co-morbidities or secondary conditions)</li> <li>• time spent in the wheelchair and the ability to make postural changes</li> <li>• the user's activities</li> <li>• vibration (<i>better ride with less vibration</i>)</li> <li>• wheelchair set up and features such as: <ul style="list-style-type: none"> <li>» pneumatic tyre inflation is maintained &gt;50%</li> <li>» pneumatic rather than solid tyre</li> <li>» type of cushion and upholstery</li> <li>» angle of tilt</li> <li>» back rest</li> <li>» frame design e.g. boxed/solid/folding</li> <li>» suspension elements of the wheel</li> <li>» front castors.</li> </ul> </li> </ul>	B
45. The therapist needs to be aware of the potential difference between the trial equipment and newly supplied equipment which may affect sitting, ride and comfort, such as the age of the trial equipment, differences in model and/or set up.	Consensus

## Tilt in space

Recommendations	Grade
46. When considering the inclusion of dynamic tilt in space and recline, the therapist should consider physiological and functional factors (as listed in the guidelines), together with the user's ability to manage the tilt in space control system.	Consensus
47. The therapist should educate the user about the concerns associated with the use of recline without posterior tilt in space.	Consensus

## Elevating leg rest

Recommendations	Grade
48. Elevating leg rests may be considered where there is a medical condition, co-morbid condition or functional requirement which needs management by sustained leg elevation.	D
49. The therapist should consider the functional implications of elevating leg rests including: <ul style="list-style-type: none"> <li>• size, circulation space required and the impact on activity and participation</li> <li>• the user's ability to operate the leg elevation mechanism independently</li> <li>• the user's driving and spatial skills to manoeuvre and negotiate the wheelchair and leg rests around obstacles, corners and corridors.</li> </ul>	Consensus
50. Where elevating leg rests are prescribed to manage oedema in the leg, a tilt in space feature should also be included to allow for the leg to be raised to a level above the heart.	Consensus
51. If a therapist prescribes an elevating leg rest to accommodate knee extension then the effect on pressure and hip position must be considered. <sup>3</sup>	D

## Elevating seat

Recommendation	Grade
52. The therapist should consider the functional benefits and concerns of an elevating seat including: <ul style="list-style-type: none"> <li>• the enhancement of functioning with reach, transfers, upper limb</li> <li>• the impact on communication and psycho-social functioning</li> <li>• the impact of environmental (physical) factors (as a facilitator and barrier)</li> <li>• behavioural, cognitive and capacity considerations</li> <li>• the impact on performance (stability, balance)</li> <li>• frequency of use.</li> </ul>	Consensus

## 5. Propulsion

### Foot propulsion

Recommendations	Grade
<p>53. For effective and safe foot propulsion, the therapist should consider:</p> <ul style="list-style-type: none"> <li>the user's lower leg length and cushion profile when determining seat to floor height of the wheelchair</li> <li>pelvic stability</li> <li>the ability to independently move forward to propel with the foot and move back to re-position</li> <li>clearance behind calf muscles, and foot during foot propulsion</li> <li>wheelchair set up such as:               <ul style="list-style-type: none"> <li>» castor size and spin</li> <li>» seat length</li> <li>» position of axle.</li> </ul> </li> </ul> <p>For unilateral and/or part-time foot propeller, foot support should be included in the prescription.</p>	Consensus
<p>54. The factors that should be considered with respect to foot propulsion include pelvic stability and posture, and the ability to recover a better posture. In order to achieve foot propulsion, symmetry of posture may be compromised which has potential long term musculoskeletal implications.</p>	Consensus

### Power assisted

Recommendations	Grade
<p>55. Power-assist wheels could be considered as they may improve functional mobility and performance for wheelchair users with reduced upper limb function.</p>	B
<p>56. Power-assist wheels may need to be considered for a wheelchair user who is at high risk of upper limb injury or is experiencing significant shoulder pain and/or reduced cardiovascular function. The therapist needs to consider the transport interface, wheelchair portability, wheelchair configuration (such as rear wheel axle position, floor-to-seat height) and the environments in which the wheelchair will be used (e.g. going up/down a gutter).</p>	B
<p>57. The therapist should trial power-assist wheels, prior to prescription, as there may be significant functional implications arising from their difference to a manual wheelchair. These implications include: transport use, wheelchair portability, wheelchair configuration, the environments in which the wheelchair can be used and limitations in distances that can be travelled.</p>	Consensus

## Drive wheel position

Recommendations	Grade
58. The therapist should conduct a thorough trial of the user's capacity to operate the specific wheel drive and wheelchair.	Consensus
59. The therapist should conduct a thorough trial if the experienced user is changing from one drive wheel position to another.	Consensus

## Control device

Recommendation	Grade
60. The therapist should consider referral of a client with complex or different needs for an alternative to the standard joystick controls (including attendant control joystick) to a specialist (interdisciplinary) seating/technology team who have expertise in specialist seating. This could be through face-to-face consultation or other media (e.g. teleconference, photographs or video conference).	Consensus

## 6. Scooters

Recommendation	Grade
61. The therapist should trial a scooter, prior to prescription, as there may be concerns arising from their difference to a powered or manual wheelchair. The concerns include: transport use, seating system, scooter portability, lack of adjustability, the environments in which the scooter can be used, weight and limitations in distances that can be travelled.	Consensus

## 7. Training

Recommendation	Grade
62. The therapist should undertake training on the use of a wheelchair device to improve their own knowledge and understanding of wheelchair user skill, wheelchair user capacity and performance requirements.	B
63. The therapist should facilitate the provision of client/attendant care worker training on the wheelchair to improve skill and performance.	A
64. Training for the user should include the elements of instruction, practice sessions and experience in the community/potential environments.	A
65. The content and intensity of training with the client/attendant care worker on the wheelchair should be the same for part-time and full-time users.	Consensus
66. The content and intensity of training may differ if the client is an experienced wheelchair user.	Consensus
67. At a minimum, the novice wheelchair user should receive training on the use of the wheelchair for an average of three to four hours over a number of weeks in sessions of approximately 30 minutes. The practice sessions are in addition to this individual training time.	A
68. The client should be provided with training in the listed topics as appropriate (refer to <i>Training topics checklist</i> ).	Consensus
69. The attendant care worker should be provided with training in the listed topics (as with a wheelchair user) as relevant and particularly if the attendant care worker operates the manual or powered wheelchair.	Consensus
70. The face-to-face training should primarily be conducted on an individual basis although practice sessions can involve buddy/paired or peer methods.	B
71. The client/attendant care worker needs to be supervised during training of wheelie skills on a manual wheelchair, until the client/attendant care worker is competent.	Consensus

## 8. Transport

Recommendation	Grade
72. The therapist should consider factors to reduce the risk of injury for wheelchair users in vehicles including those listed in the <i>Injury prevention during transportation checklist (for wheelchair users in vehicles)</i> .	Consensus

## 9. Maintenance

Recommendation	Grade
73. The therapist will consider each point in the <i>Maintenance checklist</i> prior to finalisation of the prescription.  The therapist should provide advice and ensure the manufacturer's information is provided to the user.	Consensus
74. The therapist should inform the user/attendant care worker that there needs to be regular maintenance checks. Service of the wheelchair should occur every twelve months and/or at a frequency recommended by the supplier.	C
75. The therapist should ensure that the user is provided with information regarding the options for and availability of maintenance and repair service, plus who to contact.	Consensus
76. The therapist should inform the user/attendant care worker that the wheelchair or scooter should undergo at least one maintenance service prior to the expiry of the manufacturer's warranty period.	Consensus

