WHEELCHAIR SKILLS TEST (WST)© VERSION 4.1 MANUAL

This manual and related materials can be downloaded from
www.wheelchairskillsprogram.ca/eng/testers.php.

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Editorial Committee

This Manual, like the other materials that make up the Wheelchair Skills Program, has resulted from the work of many people. Those who have had the greatest involvement in this latest version constitute the Editorial Committee. They are listed below:

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1. INTRODUCTION

A General Introduction to the Wheelchair Skills Program (WSP) can be found in a separate document, posted on the web-site. The WSP includes the Wheelchair Skills Test (WST), the Wheelchair Skills Training Program (WSTP) and related materials.

This Manual focuses on the WST. Note that this Manual is regularly updated on the basis of experience with it and questions posed by users of it. As such, the developers consider the Manual to be a "living" rather than a fixed document. Most of the refinements have been merely to clarify meaning and would have little effect on scoring. However, for academic purposes, users of the Manual should cite the date of the version that they use. This can be found in the footer of each page.

The WST is a standardized evaluation method that permits a set of representative wheelchair skills to be objectively, simply and inexpensively documented. This test is intended to test a specific person in a specific wheelchair in a standardized manner.

For clinical purposes, the WST may be used early in the course of a rehabilitation program as a diagnostic measure, especially to determine which (if any) skills need to be addressed during the rehabilitation process (e.g. by training or wheelchair changes). By repeating the test on completion of the rehabilitation phase (or later during follow-up), the WST can be used as an outcome measure. The WST was not developed for the purpose of excluding potential wheelchair users from using wheelchairs, but an institution or wheelchair provider may wish to use the WST to ensure that users have been adequately trained in the safe and effective use of specific wheelchairs. The WST may also be used for program evaluation, to answer research questions and to assist in wheelchair design.

The questionnaire version of the WST (WST-Q) can be a useful alternative to the objective WST for the assessment of capacity (what the subject *can do*). Unlike the objective WST, the WST-Q can also be used to assess performance (what the subject *does do* in everyday life). The advantages and limitations of using the WST-Q versus the WST are discussed in Section 3.

Research evidence regarding the measurement properties of the WST, including the correlation between the objective WST and the WST-Q, as well as studies in which the WST has been used as an outcome measure by the developers, can be found in the list of published papers on the web-site.

2. GENERAL INSTRUCTIONS FOR THE WST TESTER

2.1. Scope

The WST is intended for manual or powered wheelchairs, operated by wheelchair users or caregivers. Throughout the WST Manual, to simplify descriptions, it has been assumed that the wheelchair being used, whether manual or powered in type, is one with rear-wheel drive (i.e. large diameter wheels in back and smaller diameter swivel casters in front). Other types of wheelchairs and scooters can be tested, but some of the instructions and explanations may need to be adapted accordingly. Wheelchair technology is diverse and evolving at a rapid rate. There may be wheelchairs that do not easily fit the categories described. In such situations, the tester needs to exercise judgement regarding which skills are appropriate.

The WST is not intended to be an adequate measure of other important wheelchair skills (e.g. maintenance and repair skills), more extreme skills (e.g. some wheelchair sport activities) or community-integration activities that combine a number of skills (e.g. use of accessible transport, elevators or escalators). The skills chosen for inclusion in the WST are intended to be representative of the range of skills that wheelchair users and/or caregivers may need to regularly perform, varying from the most basic to the very difficult. However, it would be impossible to be all-inclusive without making the size of the WST unmanageable.

2.2. Test Subject(s)

Throughout this Manual, we have used the term “subject” as the most generic term possible, given that the person who is the object of testing may be a wheelchair user and/or the caregiver, a health-care student or a research participant. In addition to the percentage scores that can be calculated for a wheelchair user and a caregiver separately, the WST may be used to assess the extent to which one or more caregivers and a wheelchair user can function as a team; the “test subject” in this case is the combination of the wheelchair user and the caregiver(s). The nature of the test subject(s) should be recorded. If an animal (e.g. a service dog) is used to assist with a skill, generally the animal is considered an acceptable “aid” rather than a caregiver.

If a caregiver is the subject of testing, in general, the caregiver must meet the same criteria used for the wheelchair user (e.g. keeping the caregiver’s feet as well as the wheelchair wheels inside any designated limits). For the purposes of the WST, the caregiver is not permitted to sit on the wheelchair occupant’s lap to operate the wheelchair but the caregiver is permitted without penalty to choose an alternative method if this is proposed. Generally, the wheelchair user is not permitted to assist the caregiver in any way with the execution of the skill. The exceptions are the “Transfers from wheelchair to bench and back” skill (5.19), the “Gets from ground into wheelchair” skill (5.37) and the “Ascends stairs” skill (5.38). These exceptions exist because it is not a reasonable expectation that a single caregiver could complete these skills alone without special equipment. If, in the setting being tested, additional caregivers and/or special equipment are available, they may be used, but the special circumstances should be noted in the Comments section. If the usual

circumstance for a skill in real life is that a wheelchair user and his/her caregiver ordinarily share the duties, then a "blended" wheelchair user/caregiver WST may be the most appropriate choice, using the Comments section to clarify the relative roles of the two people involved. If the wheelchair user does not require any assistance for a skill (e.g. a transfer), it is reasonable to award a pass for that skill but to make a note of this circumstance in the Comment section. Special additional caregiver considerations are noted in the later section on individual skills (section 5).

2.3. Setting

The test setting for the objective WST should be reasonably quiet, private, free of distractions and well lit. A standardized obstacle course may be used, but is not necessary. The settings are described in the section on individual skills (section 5) and in the Obstacle Course page on the website. Some of the tests (e.g. turning the controller of a powered wheelchair on and off) require no equipment and can be performed anywhere. In general, the settings described in the sections on individual skills should be considered as guidelines to enhance standardization, rather than as rigid constraints. If lines are used to mark limits (e.g. during moving turns), whether it is permissible for the wheelchair parts in contact with the floor (or the subject's feet) to touch the lines depends on whether the inner or outer borders of the lines reflect the dimensions specified. For instance, if a skill setting states that the subject must stay within a 1.2m-wide space, if the outer borders of the lines represent the 1.2m dimension then the subject may touch the line. Comparable challenges in the existing natural or built environment (e.g. in and around a hospital or the wheelchair user's home), may be used. However, if the setting is materially different than the one specified, this should be noted in the Comments section of the Data Collection Form (see Forms section of web-site) and may preclude the WST values from being compared to those in more standardized settings.

2.4. Indications

In the clinical setting, the WST should be used whenever a clinician wishes to evaluate or document the wheelchair skills of a wheelchair user and/or caregiver. This may be for diagnostic purposes (to identify a problem) or as an outcome measure.

2.5. Contraindications

No skill should be objectively evaluated if the subject is unwilling to attempt it or if the subject or WST personnel (i.e. tester and spotter) would be placed at undue risk during testing (e.g. due to unstable cardiac disease, uncontrolled seizures, excessive weight). The WST-Q should not be used if the subject or a proxy (e.g. a caregiver or translator) do not have sufficient cognitive and communication resources to provide valid answers to the questions.

2.6. Referral

For clinical purposes, the WST should be initiated in whatever way is normal for the clinical setting in which the WST is being performed (e.g. by individualized clinician referral or as part of a critical pathway). A clinician familiar with the subject and the WST should ensure that there are no contraindications for testing and should identify any precautions.

2.7. Informed Consent

The subject should be informed about the purpose and general nature of the WST. If the WST is being performed exclusively for clinical purposes, a written informed consent form may be unnecessary, if a general consent for investigation and treatment has been obtained.

2.8. Forms

There are a number of forms that facilitate the administration, recording and reporting of the WST. They can be found in a separate Forms section on the web-site.

2.9. Initial Interview

Wheelchair skills assessment in the clinical context usually takes place as part of a broader evaluation of the wheelchair user's health, function and context. Prior to beginning WST testing, the tester should screen the test subject for any contraindications to testing and should obtain consent to proceed. If appropriate, demographic, clinical and wheelchair-related data are recorded on the appropriate forms. These data may be obtained from the wheelchair user, the caregiver and/or the health record. Prior to beginning the objective WST of some skills, it can be useful to briefly inquire about the subject's wheelchair abilities regarding that skill. This can help the tester anticipate any difficulties.

2.10. Wheelchair and User Set-up

A Wheelchair Specification Form (see Forms section of web-site) may be used. The wheelchair user should be dressed and equipped as usual when using the wheelchair (e.g. wearing prostheses or orthoses). The wheelchair should be set up as usual for that user. This is important because changes in the personal equipment or wheelchair set-up can affect how well the skills are performed.

If the wheelchair has user-adjustable features that could affect test performance (e.g. rear anti-tip devices for a manual wheelchair or a more powerful controller mode for a powered wheelchair), the subject is permitted to adjust them into a more functional position as long as the subject can do so unassisted. If tools are needed to make the adjustment, then they must be carried by the subject. The tester must not cue the subject to make the adjustment. Having adjusted the wheelchair to accomplish a skill, unless otherwise specified, the subject may leave the wheelchair in the new configuration for the remainder of the WST. If the subject wishes to restore the wheelchair to its original configuration, he/she must do so without assistance and without cueing from the tester until the test is over. When the WST is over, the tester should remind the subject about any adjustment that has been made, especially if the adjustment might affect safety.

2.11. General Instructions to Subject

The tester instructs the test subject on the general purpose of the WST and potential risks. The subject is instructed not to attempt any task that he/she is not comfortable performing. Also, to avoid overuse injury, the subject should not overexert him/herself in the mistaken belief that success on every skill is

expected. Generally, skill and safety are the primary considerations, not speed. The tester explains to the subject that he/she is permitted to ask questions about the test requirements before beginning the task, but not during the task.

The paragraph below may be read to wheelchair-using subjects when the objective WST is being administered. It can be modified slightly if the subject is a caregiver or if the purpose of the WST is research.

> "For about the next 30 minutes, I will be asking you to perform a number of different skills in your wheelchair. The reason for this is to find out which skills you do well and which might benefit from some practice or from changes to your wheelchair. We want to see if you can perform the skill properly and safely. We do not want you to hurt yourself, but there are some mild risks involved. For instance, you could scrape your knuckles, strain your shoulders or back, tip your wheelchair over or fall out of your wheelchair. To reduce the chances of you hurting yourself, we will be spotting you while you try each skill. Please wait until the spotter is in position before attempting each skill. Also, do not overexert yourself. We do not expect you to be able to perform every skill. Please do not try any skill that you are not comfortable performing. If you do not understand what we are asking you to do, feel free to ask questions. There is no need to hurry; this is not a race. If you would like to take a rest or to stop at any time, feel free to tell us. Do you have any general questions now, before we begin?"

Instructions may include gestures for people with language disorders or be in writing for people with hearing disorders. When giving instructions for each skill, before moving into the best position for observing and spotting the skill (if the tester is also serving as the spotter), the tester should stand to the front or side of the subject so the subject can see and hear the tester well. The tester must not instruct the subject in *how* to accomplish the task. If the tester asks for the task to be performed on both the left and right sides (e.g. turning the wheelchair around), but the subject performs the skill on only one side, the tester may prompt the subject (e.g. "Now in the other direction") without penalty.

2.12. Getting Out of the Wheelchair to Accomplish a Task

If he/she can do so safely, the subject may get out of the wheelchair to accomplish a task or to adjust a wheelchair feature (e.g. the rear anti-tip devices). This does not include using any sitting surface other than the ground, unless specifically noted in the individual skill section, because such a surface might not always be available when such an adjustment is needed. The policy of permitting subjects to get out of their wheelchairs is in recognition that many people who use wheelchairs do so in combination with walking for their mobility.

2.13. Feedback

There should be neither feedback regarding the correctness of the skill performance, nor verbal assistance during the test performance. After the attempt, feedback may be given on how the subject

did – for instance, "You did very well" or "You had some difficulty with that". If the subject fails a skill, neither feedback on the reason for failure nor instruction on how it might have been performed better may be given prior to completion of the entire WST. To do so would not affect the score for the skill already tested, but there may be other skills later in the WST that could be influenced by premature feedback. If observers (e.g. students or family members) are present during the test, they should be asked to remain silent and to refrain from providing cues or feedback. Once the entire WST has been completed, the tester may explain the reasons for any failures. Indeed, the tester should warn the subject if he/she performed any skill in an unsafe manner.

2.14. Ensuring Safety During Testing

The tester or another trained person must serve as a spotter (section 2.20) for any task during which there is a risk of the subject losing control of the wheelchair, tipping the wheelchair over or the wheelchair occupant falling from it. A temporary seat belt may be added for skills during which there is a risk of a forward tip and the wheelchair user falling from the wheelchair. The tester should not permit the subject to attempt or complete any task that the tester has reason to believe that the subject will be unable to complete without risk to the subject, tester or spotter. For some skills (specified later in the section on individual skills [section 5]), before attempting a specific skill, unless the subject is unable to communicate, the tester should ask the subject about whether or not he/she feels able to perform the test. If not, a 'fail' may be awarded for capacity and a 'safe' for safety without requiring the subject to attempt the skill. For such skills, if the subject believes that he/she would be able to perform the skill, the tester should inquire about the method that the subject intends to use. If an unsafe method is described, the tester is justified in preventing the objective testing of that skill and awarding a failing capacity grade (section 2.24) and an unsafe safety score (section 2.25). The reasons for any intervention should be recorded in the Comments section of the WST Data Collection Form (see Forms section of web-site). Despite these precautions, as a general rule, the tester should avoid preemptively disqualifying the subject and should allow him/her to attempt a skill.

2.15. Common Risks and How to Minimize Them

There are several types of common risks that can cause injury during wheelchair use. Those that require spotter intervention and a general approach to preventing serious injury are described in more detail in the Spotter Manual (see web-site). Risks during specific skills are described later in the section on individual skills (section 5). Minor injuries (e.g. pinches, scrapes) can be difficult to prevent, because they occur without sufficient time for intervention. Overuse injuries (e.g. of shoulder) can be difficult to prevent, because symptoms may not occur until later. Although minor injuries and overuse injuries may not be a sufficient problem to warrant skill failure, the tester should note any identified problem in the Comments section, so that it can be addressed later during training. Some common risks will now be described.

- Rear tips: A rear tip occurs when the pitch of the wheelchair exceeds the rear stability limit to the extent that the wheelchair falls backwards. This may occur while the wheelchair is stationary (e.g. when reaching backwards) or moving (e.g. when accelerating forwards). If

the wheelchair user lets go of the rear wheels during a rear tip, the wheelchair will roll quickly forwards while tipping backwards. This is called "submarining".

- Forward tips and/or falls: A forward tip occurs when the pitch of the wheelchair exceeds the forward stability limit to the extent that the wheelchair tips forward. This may occur while the wheelchair is stationary (e.g. when leaning forward) or moving (e.g. when striking an obstacle). The tip may be partial, but sufficient for the wheelchair occupant to slide or fall forward out of the wheelchair. In some instances, such as during a sudden deceleration, the wheelchair occupant may slide or fall forward out of the wheelchair without any tip.

- Sideways tips: A sideways tip occurs when the pitch of the wheelchair exceeds the sideways stability limit to the extent that the wheelchair tips sideways. This may occur while the wheelchair is stationary (e.g. when leaning sideways) or moving (e.g. if one rear wheel ascends a curb before the other).

- Combination tip/fall risks: Tips and falls do not always occur in the pure rear, forward or sideways directions. For instance, when descending an incline with one footrest elevated and the other lowered, a combined forward and sideways tip may occur when the lowered footrest strikes the ground at the incline-level transition, decelerating one side of the wheelchair. Another combination risk is when different risks present themselves sequentially. For instance, during an attempt to overcome a threshold with the momentum approach, there is the risk of a rear tip when the wheelchair user attempts to pop the casters high enough to clear the threshold. If the casters do not clear the threshold, the sudden deceleration of the wheelchair can then cause a forward tip or fall.

- Runaways: A runaway occurs when the wheelchair user loses control of the speed or direction of the wheelchair (e.g. when descending an incline or stairs). This can lead to a collision or a tip.

- Injury due to contact with a wheelchair part: Pinches can occur when a part of the subject's body becomes caught in a wheelchair part (e.g. when opening a folded wheelchair). Injury can also occur if a body part is dragged over or rubbed against a sharp wheelchair part (e.g. the under-surface of a flipped-up footrest). Also, during some activities (e.g. curb ascent) that require the wheelchair user to push forcefully on the hand-rims, the thumbs may get abraded by the wheelchair brakes. During incline descent, the hands slowing the wheelchair by friction on the hand-rims can experience friction burns or lacerations due to sharp burrs on the hand-rims.

- Injuries due to contact with the environment: When exposed parts of the wheelchair user's body (e.g. hands, feet or head) strike or get pinched by objects in the environment (e.g. doors or walls), injury may occur.

- Lower-limb hyper-flexion injury: The lower limb can be injured if the wheelchair moves forward with the foot planted on the surface. This is most likely to occur when the foot catches on the ground (e.g. at an incline-level transition, or when negotiating obstacles or level changes). Examples of injuries are hyper-flexion sprain of the knee or fracture of the tibia or femur due to a knee being forcibly flexed beyond its available range.

- Jarring: Sudden jarring forces can be experienced when the wheelchair decelerates suddenly (e.g. when rolling into a pothole or dropping off a curb).

- Over-exertion injuries: If subjects over-exert themselves when attempting skills that they are unfamiliar with or incapable of performing, they may experience overuse injuries (e.g. affecting the shoulder or back). Similarly, subjects with limited exercise tolerance due to medical conditions (e.g. of heart or lung) may cause themselves harm by over-exertion.

- Poor ergonomic technique: Subjects are at risk of acute or chronic injuries due to poor ergonomic technique (e.g. folding the wheelchair with a bent and twisted back).

2.16. Disclaimer re Safety

Safely performing a skill in the supervised WST environment provides no guarantee that the subject will perform the same or similar skills safely on other occasions in the same or similar settings.

2.17. Disclaimer re Sensitivity and Specificity

The WST is a sensitive and specific test. A change in the subject (e.g. by a reduction of spasticity or removal of a prosthesis), a change in the wheelchair (e.g. by addition of a rear anti-tip device) and/or a change in the test environment (e.g. by lowering lighting conditions) may affect the test scores. The WST findings are therefore specific to the situation assessed.

Furthermore, the objective WST is a measure of what a subject *can do* ("capacity", in the terms of the International Classification of Functioning, Disability, and Health [ICF]) during a specific test administration, in a specific wheelchair and in a specific setting. It is not a measure of what he/she wants to do, *does do* ("performance", in ICF terms) on a regular basis or *will do* in the future. The questionnaire version of the WST (WST-Q) can be used as a measure of performance.

2.18. Starting Positions

Starting positions for the test subject, the wheelchair, the tester and the spotter(s) are specified in the section on individual skills. Unless otherwise noted, the starting positions for each WST skill are as follows:

- Wheelchair user: the wheelchair user is seated in the wheelchair, in whatever position and state that he/she prefers.
- Caregiver: If a caregiver is the subject of testing, his/her starting position is generally standing near the wheelchair.

- Wheelchair: all of the wheelchair components that are usually used by the subject are in place. The brakes may be locked or unlocked. With the exception of the "roll forward 10m in 30s" skill (#5.9) (because it is timed), a rolling start is permitted (i.e. there is no need to come to a complete stop before beginning the skill attempt). Unless otherwise specified, when a starting position for the wheelchair is defined (e.g. relative to an obstacle), the tester may assist the subject in getting the wheelchair into this position. The tester should be careful not to provide inadvertent cues to the subject on how to perform this or subsequently tested skills. For instance, with a powered wheelchair that has both caregiver and user-operated controls, the tester should use the caregiver controls because they are usually out of the wheelchair user's line of sight. If the subject expresses the wish to attempt a task by moving the wheelchair backwards, the tester may assist him/her in getting into the requested starting position, but the tester must not suggest alternative approaches. Also, when the instructions call for the axles of the leading wheels to be behind a starting line, the leading wheels must be ones that are normally in contact with the ground (i.e. not the wheels of anti-tip devices that are off the ground).
- Tester: The starting position for the tester is where he/she can be well seen and heard when providing instructions for the skill.
- Spotter(s): The starting position for the spotter(s) is near the wheelchair, but the exact position varies with the skill being attempted, the number of spotters involved and the method being used to complete the skill. For powered wheelchairs, the spotter should be in a position where the power can be turned off and the joystick accessed.

2.19. Testers

The position for the tester, after initially communicating instructions to the subject, is generally where he/she will be best able to view the skill performance. The tester is an important element in the reliability and validity of the test results. The tester may be a rehabilitation clinician (e.g. an occupational or physical therapist) who is regularly involved in wheelchair prescription and training, but there are no minimum educational pre-requisites for those interested in becoming WST testers. However, the tester must be thoroughly familiar with all elements of the WST, including the general principles and the specific test elements. It is important that the test elements be administered in a consistent manner. The tester should feel free to refer to the WST Manual whenever necessary.

Those interested in becoming WST testers should read the WST Manual and related materials thoroughly, review practice materials (e.g. videos on the website) and observe in-person how a skilled tester administers the test. Ideally, the WST should only be used by testers who have been trained in its administration and certified to have the necessary knowledge, skills and attitudes. However, good results should be possible by careful attention to the WST Manual, because the test has been designed to be reasonably self-explanatory and to reflect normal clinical practices.

2.20. Spotters

Spotters play an important role in ensuring safety during WST testing. The spotter role is dealt with

in detail in a separate Spotter Manual (see web-site). Although we have separated the testing and spotter roles for the purposes of discussing the different roles, usually a single person can easily fulfill both roles. With few exceptions, a single spotter can adequately minimize the likelihood of serious injury. However, for some situations (e.g. a heavy wheelchair user), an additional spotter may be needed. Testers must understand the spotter's role and be able to supervise the spotter(s), although the testers need not be able to perform the physical spotter tasks themselves.

If a caregiver is the subject of testing, he/she is expected to behave in a manner that is safe for both the wheelchair occupant and the caregiver. The spotter in such situations should remain close enough to intervene if the caregiver fails to exercise due caution.

2.21. Hierarchy of WST Personnel

During the WST, although he/she may be assisted by one or more spotters, the tester is the member of the Wheelchair Skills Program personnel who has the ultimate responsibility for minimizing the risk of injury. Testers should have had spotter training (at least the knowledge component) as well as being trained for their tester roles. If the spotter and tester roles are being fulfilled by different people, and there is a difference of opinion between the test personnel, the tester shall make the final decision, after carefully considering the opinion of the spotter.

2.22. Number of Attempts Permitted

For each skill, the subject is ordinarily permitted only a single attempt. However, if the subject misunderstands the instructions or indicates convincingly that an unsuccessful attempt was unrepresentative of the usual performance level, a second attempt may be permitted. A second attempt is not permitted if the first attempt was unsafe (section 2.25). During the course of any single attempt, a subject may use different approaches (e.g. in a manual wheelchair first attempting the soft-surface skill forwards, then backwards if unable to proceed or, in a powered wheelchair, pausing to change controller settings or the degree of tilt). It is only considered a second attempt if the subject clearly starts over (e.g. with a repeat of the instructions) and a significant pause between attempts. If there was something clearly unfair about an initial attempt (e.g. the spotter intervened prematurely), it is permissible to repeat the attempt without penalty. If a subject appears to be rushing his/her skill attempts and failing to meet test criteria because of this, on the first occasion that this occurs, the tester may permit a second attempt and explain the importance of listening carefully to the instructions before beginning the skill attempt.

A second attempt should not be considered a routine; ultimately, this is at the tester's discretion. If a second attempt is believed to be appropriate, the tester should provide no feedback on the reason for the failure, nor any instruction on how to perform the task, between the two attempts. The task instructions may be repeated. If the skill is performed better on the second trial, record the better score. If a subject is unsuccessful when asked to perform a task (e.g. sideways maneuvering) but does it correctly later, incidental to another task (e.g. the transfer), the score must not be revised. The WST requires that the subject be able to perform the skill on command. It is sometimes the case that a test

subject who has just failed a skill will ask for a chance to "try again". This may be permitted, at the tester's discretion, but it is the first attempt that is scored.

2.23. Use of Aids

Aids (e.g. for reaching) are permitted if the subject carries them with him/her or if they are available in the subject's personal environment and the WST is conducted there (e.g. a transfer aid at the bedside). An animal (e.g. a service dog) that assists with the performance of a skill is considered an aid, not a caregiver.

2.24. Scoring of Individual Skills on Capacity

The tester scores the success in accomplishing each skill, using the scale shown in Table 1.

Table 1: Scale for Scoring Skill Capacity

Pass:

- Task independently and safely accomplished. Unless otherwise specified, the skill may be performed in any manner. The focus is on meeting the task requirements, not the method used. Aids may be used (section 2.23).
- A pass may be awarded if the subject passed a more difficult version of the same skill (e.g. if a subject successfully ascends a 15cm curb, a pass may be awarded on the 5cm level change without the subject needing to actually perform the latter).

Fail:

- Task incomplete.
- Unsafe performance (as defined in section 2.25).
- Likely to be unsafe in the opinion of the clinician or tester (e.g. on the basis of the subject's description of how a task will be attempted).
- Unwilling to try.
- Has failed an easier version of the same skill (e.g. if the subject cannot roll forward 10m [#5.8], he/she need not be asked to roll 100m [#5.21]).
- If a caregiver is the subject of testing, he/she may not ask the wheelchair occupant for advice or physical assistance in the performance of the skill unless specifically permitted in the caregiver section of the individual skill descriptions (section 5).
- Wheelchair part malfunction.

No Part:

- The wheelchair does not have the component.

Testing Error:

- If testing of the skill was not sufficiently well observed to provide a score (e.g. if the

skill is being scored from videotape and the entire skill could not be viewed).
- If the testing error is recognized when it occurs, the test should be repeated.
- If there is a minor testing error that the tester judges as not affecting his/her ability to score the test, this can be ignored.
- For the WST-Q, the Testing Error score can be used if the subject is unable to understand the question well enough to provide a valid answer.
- Note: If a Testing Error score is awarded for either Capacity or Safety, this score should be recorded for both.

2.25. Scoring of Individual Skills on Safety

Although a skill must have been performed safely for a pass on capacity to be awarded, it is possible to fail on capacity in a safe or unsafe manner. For this reason, in addition to scoring each skill on capacity during the objective WST, the tester may score each skill for safety. The possible scores are shown in Table 2. (Note that, for the WST-Q, it can be difficult to adequately identify subtle safety concerns, so safety is not routinely scored separately.)

The nature of any potentially dangerous incident should be documented in the Comments section. If a subject demonstrates potentially dangerous behavior before or after the WST, or between skills that are otherwise performed safely, this should be noted in the Additional Comments section at the bottom of the WST form.

Table 2: Scale for Scoring Skill Safety

Safe:
- None of the unsafe criteria were met.
- A safe score can be awarded to a subject who states that he/she cannot do and/or will not attempt a skill.

Unsafe:
- Subject requires appropriate and significant spotter intervention to prevent acute injury to the subject or others (section 2.26). Performing a skill quickly is not, in and of itself, unsafe. A significant intervention is one that affects performance of the skill.
- A significant acute injury occurred. This includes sprains, strains, fractures or head injury, but does not include minor blisters, abrasions or superficial lacerations. Poor technique that may or may not lead to overuse injury at a later time should be noted in the Comments section, but does not warrant awarding an unsafe score.
- During screening questions (section 3), the subject describes a method of performing a skill that the tester considers dangerous.
- If a caregiver creates more than minimal discomfort or potential harm (e.g. using excessive force with the knee against a flexible backrest of the wheelchair to help push the wheelchair through gravel).

- Specific risks and whether they warrant an unsafe score or merely a recorded comment can be found later in the section on individual skills (section 5).

No Part:
- As for Capacity scoring (Table 1).

Testing Error:
- As for Capacity scoring (Table 1).

Note:
- If an easier version of the skill has been failed, the skill under consideration is not objectively tested, so the tester who wishes to award a safety score needs to determine whether the attempt would have been safe or unsafe on the basis of interview and how the subject performed the easier skill.

2.26. Spotter Intervention

If there is spotter intervention during a skill attempt, the extent of the intervention and the reason for it should be recorded in the Comments section. The extent of spotter intervention may consist of a warning to a subject to stop or change the approach, minor physical contact from the spotter (even if the subject was able to complete the trial) or full intervention (e.g. if the subject required the spotter to prevent him/her from potentially injuring him/herself). If a spotter believes that a significant injury is imminent, he/she should intervene.

The nature of any potentially dangerous incidents should be recorded in the Comments section. Transient tips (when one or more wheels unintentionally lift from the surface, but the wheelchair returns to the upright position without spotter intervention), are not sufficient reasons to fail a subject's attempt at a skill. Indeed, intentional transient tips are necessary to accomplish some skills. Full tips should never occur, because the spotter should intervene.

If any significant and justified spotter intervention is needed, the subject must be awarded a failing capacity grade (section 2.24) and an unsafe safety score (section 2.25) on this skill. The tester may decide that an intervention was not warranted and allow the subject to attempt the skill again. A significant intervention is one that interferes with the performance of the skill. Note that a spotter may occasionally intervene inappropriately. If this is a minor intervention, that neither hinders nor helps the subject, it can be ignored ("no harm, no foul").

2.27. Time Limits

With the exception of the "roll forward 10m in 30s" skill (#5.9), there is no formal upper time limit for each skill or for the entire WST. This is to avoid the necessity of the tester timing each skill and to avoid having the subject feel rushed to complete the task. Although, in real life, a skill must be performed within a practical time to be useful, the definition of what such a time limit should be may

vary with the circumstances. Fortunately, when administering the WST, this does not usually present a dilemma because the subject stops a task when it is taking too long. Also, if a subject is perseverating or taking an apparently hopeless approach, the tester may intervene and stop the test of that skill. There are only two skills ("relieves weight from buttocks [5.18]) and "performs a 30s stationary wheelie [#5.35]with minimum time limits.

2.28. Rests and Breaks

Rests are permitted during the skill attempts, unless precluded by the nature of the skill (e.g. the "performs a 30s stationary wheelie" skill [#5.35]). If the subject is making progress, he/she should be allowed to continue. It is also permissible for subjects to rest between skills. Indeed, there is no need for all of the skills to be performed on the same day. The WST is a test of individual skills, not a test of endurance. However, if the testing is conducted on more than one day, the tester should document the dates. Also, the wheelchair, its set-up and subject aids (e.g. prosthesis) must remain the same if an overall score is to be valid.

2.29. Timing

The WST only requires the timing of three skills – the "roll forward 10m in 30s" (#5.9), "relieves weight from buttocks (5.18) and "performs 30s stationary wheelie" (#5.35) skills. These need only be timed to the nearest second. However, the time required to perform other individual skills, a series of skills or the entire WST can provide an additional level of sensitivity to change (e.g. due to training or the use of a different wheelchair) that clinicians or researchers may wish to use.

2.30. Video-Recording

Video-recording of the tasks is not necessary, but can provide useful qualitative information about how the task is accomplished. Video feedback can also be a useful training aid.

2.31. Comments

On the WST Data Collection Form (see Forms section of web-site), the tester should record any comments that are appropriate (e.g. the reasons for any failures, left-right asymmetry). Comments by the test subject may also be recorded. Note should be made of any observations that require action (e.g. further training in alternative ways to accomplish a task or a change in equipment that might help). The WST tester should be alert to potentially correctable limiting factors in the wheelchair user's health (e.g. limited range of motion), wheelchair (e.g. rear axles too far back) and environment (e.g. if the WST is performed in the subject's home, a doorway that is too narrow).

2.32. Versions of WST 4.1

There are four modular versions of WST 4.1 (Table 3). These versions are identical in all appropriate respects, but differ slightly. Which version should be used in a specific instance is based on the type of wheelchair and the nature of the test subject. Tables showing the individual skills for each version can be found later in Tables 4-8.

Table 3. Versions of WST by Type of Wheelchair and Nature of the Test Subject

Type of Wheelchair	Type of Test Subject	Version of WST
Manual	Wheelchair user	WST-M/WCU
	Caregiver	WST-M/CG
Powered	Wheelchair user	WST-P/WCU
	Caregiver	WST-P/CG

Abbreviations: M = manual, P = powered, WCU = wheelchair user, CG = caregiver.

Each of these versions can be administered objectively or in questionnaire format. In addition to these 'pure' versions, 'blended' options are possible (e.g. blended wheelchair user/caregiver or blended objective/questionnaire).

2.33. Individual Skills

The individual skills (Table 4) are the units of assessment. For each skill objectively assessed, a single capacity score is recorded and a single safety score may be recorded. In naming the individual skills, we have attempted to be as generic and universal as possible. This is in recognition that the specific environments in which wheelchairs are used vary widely around the world, but share many common characteristics.

Although somewhat arbitrary, it is possible, on the basis of difficulty, to roughly group skills into three levels – indoor, community and advanced. This can be helpful for communicating with others, for planning therapies and for justifying the purchase of different types of wheelchairs. Which skills have been assigned to which categories is indicated in Table 4.

Table 4: WST 4.1 Master List of Individual Skills

#	Skill Level	Individual Skills	Manual WC		Powered WC	
			WCU	CG	WCU	CG
1.	Indoor	Moves controller away and back	X	X	✔	✔
2.	Indoor	Turns controller on and off	X	X	✔	✔
3.	Community	Selects drive modes and speeds	X	X	✔	✔
4.	Indoor	Controls tilt function	X	✔	✔	✔
5.	Indoor	Controls recline function	X	✔	✔	✔
6.	Indoor	Disengages and engages motors	X	X	✔	✔
7.	Indoor	Operates battery charger	X	X	✔	✔
8.	Indoor	Rolls forward 10m	✔	✔	✔	✔
9.	Community	Rolls forward 10m in 30s	✔	✔	✔	✔
10.	Indoor	Rolls backward 5m	✔	✔	✔	✔
11.	Indoor	Turns 90° while moving forward	✔	✔	✔	✔
12.	Indoor	Turns 90° while moving backward	✔	✔	✔	✔
13.	Indoor	Turns 180°in place	✔	✔	✔	✔

14.	Indoor	Maneuvers sideways	✔	✔	✔	✔
15.	Indoor	Gets through hinged door in both directions	✔	✔	✔	✔
16.	Indoor	Reaches 1.5m high object	✔	X	✔	X
17.	Indoor	Picks object from floor	✔	X	✔	X
18.	Indoor	Relieves weight from buttocks	✔	X	✔	X
19.	Indoor	Transfers from WC to bench and back	✔	✔	✔	✔
20.	Community	Folds and unfolds wheelchair	✔	✔	X	X
21.	Community	Rolls 100m	✔	✔	✔	✔
22.	Community	Avoids moving obstacles	✔	✔	✔	✔
23.	Community	Ascends 5° incline	✔	✔	✔	✔
24.	Community	Descends 5° incline	✔	✔	✔	✔
25.	Advanced	Ascends 10° incline	✔	✔	✔	✔
26.	Advanced	Descends 10° incline	✔	✔	✔	✔
27.	Community	Rolls 2m across 5° side-slope	✔	✔	✔	✔
28.	Community	Rolls 2m on soft surface	✔	✔	✔	✔
29.	Community	Gets over 15cm pot-hole	✔	✔	✔	✔
30.	Community	Gets over 2cm threshold	✔	✔	✔	✔
31.	Community	Ascends 5cm level change	✔	✔	✔	✔
32.	Community	Descends 5cm level change	✔	✔	✔	✔
33.	Advanced	Ascends 15cm curb	✔	✔	X	X
34.	Advanced	Descends 15cm curb	✔	✔	X	X
35.	Advanced	Performs 30s stationary wheelie	✔	✔	X	X
36.	Advanced	Turns 180° in place in wheelie position	✔	✔	X	X
37.	Advanced	Gets from ground into wheelchair	✔	✔	✔	✔
38.	Advanced	Ascends stairs	✔	✔	X	X
39.	Advanced	Descends stairs	✔	✔	X	X

Abbreviations and symbols: WC = wheelchair, WCU = wheelchair user, CG = caregiver, ✔ = included, X = not included

2.34. Order of Tests

The order of skills in Table 4 reflects the functional groupings of skills and the approximate order of difficulty (although this can vary depending upon the subject and wheelchair). However, during the WST, the tests may be performed in any order. For instance, it is often practical to test the subject's ability to fold and unfold the wheelchair after testing the ability to transfer out of the wheelchair, but before evaluating the transfer back into the wheelchair. The order of testing may also vary depending on the availability and layout of equipment and test settings. For highly skilled test subjects, it may even be practical to use a "top-down" approach, starting with the more advanced of similar skills. If the subject can perform the advanced-level version of some skills (e.g. the "ascends 15cm curb" skill [#5.33]), then a pass may also be awarded for the simpler version of the same skill (e.g. the "ascends

5cm level change" skill [#5.31]).

2.35. Left- vs. Right-Sided Components of Skills

In objectively evaluating skill performance, both sides are tested (e.g. turning to left and right). Although this may be redundant for subjects with symmetrical impairments (e.g. of strength or range of motion), it may be valuable for subjects with asymmetrical impairments (e.g. due to hemiplegia or amputation) or for wheelchairs with asymmetrical flaws (e.g. a bent wheel rim on one side). A left-sided skill can be performed using the right hand without penalty and vice versa.

2.36. Minimizing Ways in Which Training Can Invalidate WST Scores

There are three avoidable ways that wheelchair skills training can have undesirable effects on WST scores:

1. **Inflation of the baseline score:** If the same person is serving as both the tester and trainer, he/she may be tempted to conduct testing and training together. For instance, if the subject fails the pot-hole-negotiation skill, the tester/trainer may decide to provide instruction immediately, before continuing with the testing. However, the tester should complete as much of the pre-training WST as possible before beginning any training, because the pre-training score of some skills may be artificially inflated by just having learned about a similar skill. In the pot-hole example, training is likely to improve the subject's ability to perform the subsequent threshold skill. To reduce potential frustration by a subject who wants to proceed immediately to training, the tester should explain the process and indicate when training on the skills will be provided.

2. **Failure to ensure skill retention:** It is not unusual for a subject learning a new skill to experience transient success during a training session, but to be unable to perform the same skill at the next session. The ultimate goal of training is that the subject will retain the ability to perform the skill at any time in the future. To ensure at least short-term retention, the post-training WST should be performed at least 3 days after the training has been completed.

3. **The "training to the test" or "specificity of training" phenomenon:** If the training and testing are carried out in the same setting, it is possible that the subject may perform well in that setting, but not others. The onus is on the trainer to be aware of this phenomenon, to have the subject practice in a variety of settings and to vary the order of skills during practice. This increases the likelihood that the subject will be able to transfer or generalize the skill, which is the object of training. The tester should also be aware of this phenomenon, varying the WST to the extent possible during subsequent tests. This may be as simple as having the person face a different direction while attempting a skill (e.g. the stationary wheelie) or varying the order of skills assessed. The WST-Q is less susceptible to this limitation than the objective WST.

2.37. After the Test

The tester should document any problems or comments by the participant. The data on the WST Data Collection Form (see Forms section of web-site) is used to calculate one or more summary scores

(section 2.38).

2.38. Calculated Scores

The following scores can be easily calculated by hand (as described below) or by using software developed for the purpose. Which scores are calculated depend upon the purpose of the WST.

1. **Total Capacity Score (%):** This is calculated for the modular version of the WST that has been assessed (Table 3). The numerator is the Total Raw Capacity Score (i.e. the number of individual skills awarded a passing score) and the denominator is the number of applicable skills (i.e. the total number of skills in the module minus the number of skills awarded NP [no part] or TE [testing error] scores). 100% is the maximum possible percentage score.

   Total Capacity Score = # passed skills/(number of possible skills - # NP - #TE) X 100%

2. **Total Performance Score (%):** This is calculated if performance data have been collected on the WST-Q. The numerator is the Total Raw Performance Score (i.e. the number of individual skills awarded a passing score) and the denominator is the number of applicable skills (i.e. the total number of skills in the module minus the number of skills awarded NP [no part] or TE [testing error] scores). 100% is the maximum possible percentage score.

   Total Performance Score = # passed skills/(number of possible skills - # NP - #TE) X 100%

3. **Total Safety Score (%):** This may be calculated for the modular version of the WST that has been assessed (Table 3). The numerator is the Total Raw Safety Score (i.e. the number of individual skills awarded a safe score) and the denominator is the number of applicable skills tested (i.e the total number of skills in the module minus the number of skills awarded NP [no part] or TE [testing error] scores). 100% is the maximum possible percentage score.

   Total Safety Score = # safe skills/(number of possible skills - # NP - #TE) X 100%

4. **Goal Attainment Score (GAS):** This calculated score is of particular use when there is only a limited set of the skills that are to be addressed during training (e.g. in a clinical setting). The numerator and the denominator for the GAS apply only to the skills that are designated as being feasible goals. Otherwise, an unexpected success on a skill that was not a goal could offset a failure on a skill that *was* a goal. By definition, if a wheelchair does not have a part (e.g. tilt function), the associated skill cannot be a goal. 100% is the maximum possible percentage score.

   If GAS scoring is to be used, the clinician responsible for wheelchair training is usually the person who records whether an individual skill is a goal. The clinician must be able to answer "yes" to the following two questions: i) "is this skill a goal of the subject?" and ii) "is it feasible for the subject to be able to perform this skill in this wheelchair now or at the end of a reasonable training

period?" The clinician should take into consideration the subject's demographic and clinical characteristics, aspirations, anticipated level of function, wheelchair equipment and post-discharge setting. The clinician should consider the available input from the wheelchair user, his/her family and other team members.

5. **Caregiver-Assisted Percentage Score:** As noted earlier (section 2.2), in addition to the percentage scores that can be calculated for a wheelchair user and a caregiver separately, the WST may be used to assess the extent to which a caregiver and a wheelchair user can function as a team. The "test subject" in this case is the combination of the wheelchair user and the caregiver. Such a score may be referred to as a "blended" wheelchair user/caregiver score.The same formulae are used for the calculations as described above.

6. **Special Purpose Subtotal Score:** Any subset of individual skills may be selected for a calculated subtotal percentage score. For instance, in a research study exploring different designs of rear anti-tip devices (RADs), a subset of the RAD-Relevant Skills could be selected. Another example would be to calculate the scores for individual categories (i.e. Indoor, Community and Advanced). When the local situation precludes performing all of the skills objectively, some of the skills can be assessed objectively and some on the basis of WST-Q questions, noting which method was used in the Comments section. Such a score may be referred to as a "blended" WST/WST-Q score.

2.39. Test Report

The Test Report includes the scores for individual skills, the calculated scores and comments. It may be completed by hand or generated by software developed for the purpose.

2.40. Test Interpretation

The WST results need to be interpreted in light of the subject's characteristics and situation.

3. GENERAL CONSIDERATIONS FOR THE QUESTIONNAIRE VERSION (WST-Q)

The relevant general instructions for the objective versions of the WST (section 2) also apply to the questionnaire versions of the WST (the WST-Q). How the testing is generally adapted for WST-Q administration is described in this section.

3.1. When Used

As an outcome measure, the WST-Q has some advantages over the objective WST, as well as some limitations. There is fairly good documentation that the WST-Q and WST are highly correlated, although the WST-Q values tend to be slightly higher.

The advantages of the WST-Q include that it requires less time, equipment and space to perform, it does not appear to induce a training effect of its own (like the objective WST seems to do), it avoids a training-to-the-test effect, it allows one to assess performance as well as capacity (in ICF terms), it is more realistic (relating as it does to the subject's own setting), it is not subject to limitations due to missing equipment (e.g. battery charger), subjects are not likely to fail a skill on a technicality (e.g. a wheel slightly over a line), and the WST-Q may be the only option for situations in which objective testing is impractical or impossible (e.g. during telephone follow-up interviews).

The limitations of the WST-Q are that the tester must rely on the subject's ability to understand the questions and to communicate valid answers. This limitation can be offset by having a proxy (e.g. a caregiver) who knows the subject well or a translator assist in providing the answers. There is potential for the subject to overestimate or underestimate their capacity and performance. The WST-Q does not provide sufficient detail about how the skills are performed to permit training solely on this basis. However, as training begins, the trainer can see objectively how the participant performs each of the skills that will be worked on during training.

As noted in Section 2.9, the WST-Q may be used, in whole or in part, as a screening procedure to help prepare for the objective WST. The WST-Q may be used for any skill, but should be used for specific skills that could be particularly hazardous if attempted inappropriately. Depending upon how the questions are posed, the WST-Q may be used as a measure of capacity (what the subject *can* do) or performance (what the subject *does* do in everyday life). WST performance is related to WST capacity, but is also related to personal factors (e.g. age, lack of confidence) and the environment (e.g. bad weather, architectural barriers, lack of opportunity).

Table 1. Comparison of WST and WST-Q Advantages and Limitations

Consideration	WST	WST-Q
Time to administer	~30 minutes	~10 minutes
Obstacles needed	Yes	No
Space needed	~1000 square feet	None
Induces a training effect	Probable (~5%)	None known

Can assess capacity (*can* do)	Yes	Yes
Can assess performance (*does* do)	No	Yes
Simulated vs real setting	Simulated usually	Real
Likelihood of failing a skill on a technicality	Occasional	None
Possibility of a 'testing error'	Occasional	Rare
Can be administered by phone	No	Yes
Can be administered by postal questionnaire	No	Yes
Can be completed by a proxy	No	Yes
Requires ability to follow instructions	Yes	No
Requires ability to communicate	No	Yes (unless proxy)
Potential to misrepresent functional level	Low	Slightly greater
Total scores	Slightly lower	Slightly higher (~4%)
Provides detail about *how* the skills are performed	Yes	No
Risk of injury	Minimal	None

3.2. Requirements

The WST-Q is only valid if the subject is able to communicate and understand instructions. As a screening procedure, the tester should ask the potential subject about information (e.g. date of birth, diagnosis, length of time using a wheelchair, and time up in the wheelchair each day) that can be corroborated by chart review, the nursing staff or family members. It is acceptable for a proxy (e.g. a caregiver or family member) who knows the subject well to answer on behalf of the subject, but the proxy's name and relationship to the subject should be recorded. Alternatively, a translator may be used if the test subject is not fluent in the language in which the WST-Q is being administered.

3.3. Instructions and Questions

The subject should initially be oriented to the questionnaire and general instructions. Interview scripts are provided in the Appendix of this Manual (Section 6) and in the Forms section of the website. The tester reads or otherwise poses the questions and records the answers. The tester should have an understanding about the characteristics of the wheelchair prior to beginning the WST-Q. This will permit the tester to score "no part" for questions related to features (e.g. whether the wheelchair folds) that the wheelchair does not have. If a test subject is unclear about the meaning of the question, the tester may repeat the question or re-phrase it. If the tester has a concern about the validity of an answer to a question (e.g. if a subject with high-level tetraplegia reported being able to ascend stairs), he/she should probe further (e.g. "How would you do it?"). When answering the questions, subjects are asked to imagine the situations or obstacles that they would face in their own environments.

3.4. Evaluation Criteria

If a tester finds it necessary to probe further about the answer to a question, the subject is expected to describe a technique that would allow successful completion of the skill based on the evaluation criteria in place for the objective WST and for the type of wheelchair and wheelchair components

that are on the subject's wheelchair. Some of the questions deal with combinations of two skills (e.g. going through a door in both directions or performing a turn to the left and right). When that is the case, the subject would need to answer 'yes' to both questions to meet the criterion for that skill. If the answer to the first question is 'no', there is no need to pose the second question. If a subject answers 'no' to capacity, a 'no' should be recorded for performance without any need to pose the question. If a person cannot do a skill (capacity), then he/she does not do it (performance). If a subject says that he/she has never done the skill before, then a 'fail' score should be given for capacity and performance. If a subject says that his/her ability to complete a skill is intermittent (e.g. due to fatigue), then a 'fail' score should be given for capacity. The subject must be consistently able to do the skill. The WST-Q for capacity is the same as the objective WST with respect to the time frame, namely at the present time unless otherwise specified. The time frame for performance is from whenever specified (e.g. in the past month).

3.5. In-Person Administration

If the WST-Q is administered in person, it is acceptable for the tester to point to parts of the wheelchair or otherwise use gestures to illustrate the nature of the question. If the WST-Q is being administered in person, it is sometimes easier to use photographs, drawings or objects in the environment as props to help explain the question rather than only using words to describe the skill. Similarly, the subject may use gestures, writing or actual demonstration of any of the skills rather than using verbal answers and comments alone to answer the questions. When some skills are evaluated objectively and some subjectively (a "blended" WST/WST-Q), the tester should indicate in the Comments section which skills were tested in which way.

3.6. Telephone Administration

If the questionnaire is being administered by telephone, it is helpful to ask the subject to have the wheelchair close at hand to act as a visual aid or prop. Unlike in the objective WST or the WST-Q administered in person, the telephone tester cannot see the wheelchair being used, so the questions should include some about the presence and type of wheelchair parts. At present, there is no research documentation of the correlation between in-person and telephone administrations of the WST-Q.

3.7. Self-Adminstered Questionnaire

The scripts for the WST-Q can be self-administered, such as in a postal or on-line questionnaire. However, at present, there is no research documentation of the correlation between in-person and self-administered administrations of the WST-Q.

TABLES OF INDIVIDUAL SKILLS IN THE DIFFERENT VERSIONS OF THE WST

Table 5. WST-M/WCU: Individual Skills for Manual Wheelchairs Operated by Wheelchair Users.

Version #	Master #*	Individual Skills
1.	8	Rolls forward 10m
2.	9	Rolls forward 10m in 30s
3.	10	Rolls backward 5m
4.	11	Turns 90° while moving forward
5.	12	Turns 90° while moving backward
6.	13	Turns 180°in place
7.	14	Maneuvers sideways
8.	15	Gets through hinged door in both directions
9.	16	Reaches 1.5m high object
10.	17	Picks object from floor
11.	18	Relieves weight from buttocks
12.	19	Transfers from WC to bench and back
13.	20	Folds and unfolds wheelchair
14.	21	Rolls 100m
15.	22	Avoids moving obstacles
16.	23	Ascends 5° incline
17.	24	Descends 5° incline
18.	25	Ascends 10° incline
19.	26	Descends 10° incline
20.	27	Rolls 2m across 5° side-slope
21.	28	Rolls 2m on soft surface
22.	29	Gets over 15cm pot-hole
23.	30	Gets over 2cm threshold
24.	31	Ascends 5cm level change
25.	32	Descends 5cm level change
26.	33	Ascends 15cm curb
27.	34	Descends 15cm curb
28.	35	Performs 30s stationary wheelie
29.	36	Turns 180° in place in wheelie position
30.	37	Gets from ground into wheelchair
31.	38	Ascends stairs
32.	39	Descends stairs

The Master # corresponds to Table 4.

Abbreviations and symbols: WC = wheelchair, WCU = wheelchair user, CG = caregiver, ✔ = included, X = not included

Table 6. WST-M/CG: Individual Skills for Manual Wheelchairs Operated by Caregivers.

Version #	Master #*	Individual Skills
1.	4	Controls tilt function
2.	5	Controls recline function
3.	8	Rolls forward 10m
4.	9	Rolls forward 10m in 30s
5.	10	Rolls backward 5m
6.	11	Turns 90° while moving forward
7.	12	Turns 90° while moving backward
8.	13	Turns 180°in place
9.	14	Maneuvers sideways
10.	15	Gets through hinged door in both directions
11.	19	Transfers from WC to bench and back
12.	20	Folds and unfolds wheelchair
13.	21	Rolls 100m
14.	22	Avoids moving obstacles
15.	23	Ascends 5° incline
16.	24	Descends 5° incline
17.	25	Ascends 10° incline
18.	26	Descends 10° incline
19.	27	Rolls 2m across 5° side-slope
20.	28	Rolls 2m on soft surface
21.	29	Gets over 15cm pot-hole
22.	30	Gets over 2cm threshold
23.	31	Ascends 5cm level change
24.	32	Descends 5cm level change
25.	33	Ascends 15cm curb
26.	34	Descends 15cm curb
27.	35	Performs 30s stationary wheelie
28.	36	Turns 180° in place in wheelie position
29.	37	Gets from ground into wheelchair
30.	38	Ascends stairs
31.	39	Descends stairs

The Master # corresponds to Table 4.

Abbreviations and symbols: WC = wheelchair, WCU = wheelchair user, CG = caregiver, ✔ = included, X = not included

Table 7. WST-P/WCU: Individual Skills for Powered Wheelchairs Operated by Wheelchair Users.

Version #	Master #*	Individual Skills
1.	1	Moves controller away and back
2.	2	Turns controller on and off
3.	3	Selects drive modes and speeds
4.	4	Controls tilt function
5.	5	Controls recline function
6.	6	Disengages and engages motors
7.	7	Operates battery charger
8.	8	Rolls forward 10m
9.	9	Rolls forward 10m in 30s
10.	10	Rolls backward 5m
11.	11	Turns 90° while moving forward
12.	12	Turns 90° while moving backward
13.	13	Turns 180°in place
14.	14	Maneuvers sideways
15.	15	Gets through hinged door in both directions
16.	16	Reaches 1.5m high object
17.	17	Picks object from floor
18.	18	Relieves weight from buttocks
19.	19	Transfers from WC to bench and back
20.	21	Rolls 100m
21.	22	Avoids moving obstacles
22.	23	Ascends 5° incline
23.	24	Descends 5° incline
24.	25	Ascends 10° incline
25.	26	Descends 10° incline
26.	27	Rolls 2m across 5° side-slope
27.	28	Rolls 2m on soft surface
28.	29	Gets over 15cm pot-hole
29.	30	Gets over 2cm threshold
30.	31	Ascends 5cm level change
31.	32	Descends 5cm level change
32.	37	Gets from ground into wheelchair

The Master # corresponds to Table 4.

Abbreviations and symbols: WC = wheelchair, WCU = wheelchair user, CG = caregiver, ✔ = included, X = not included

Table 8. WST-P/CG: Individual Skills for Powered Wheelchairs Operated by Caregivers.

Version #	Master #*	Individual Skills
1.	1	Moves controller away and back
2.	2	Turns controller on and off
3.	3	Selects drive modes and speeds
4.	4	Controls tilt function
5.	5	Controls recline function
6.	6	Disengages and engages motors
7.	7	Operates battery charger
8.	8	Rolls forward 10m
9.	9	Rolls forward 10m in 30s
10.	10	Rolls backward 5m
11.	11	Turns 90° while moving forward
12.	12	Turns 90° while moving backward
13.	13	Turns 180°in place
14.	14	Maneuvers sideways
15.	15	Gets through hinged door in both directions
16.	19	Transfers from WC to bench and back
17.	21	Rolls 100m
18.	22	Avoids moving obstacles
19.	23	Ascends 5° incline
20.	24	Descends 5° incline
21.	25	Ascends 10° incline
22.	26	Descends 10° incline
23.	27	Rolls 2m across 5° side-slope
24.	28	Rolls 2m on soft surface
25.	29	Gets over 15cm pot-hole
26.	30	Gets over 2cm threshold
27.	31	Ascends 5cm level change
28.	32	Descends 5cm level change
29.	37	Gets from ground into wheelchair

The Master # corresponds to Table 4.
Abbreviations and symbols: WC = wheelchair, WCU = wheelchair user, CG = caregiver,
✔ = included, X = not included

5. INDIVIDUAL SKILLS

Organization of Section 5

The following section is organized by individual skills (Table 4). The descriptions are primarily for the objective WST, but the WST-Q is intended to assess skills with similar characteristics and expectations. For each skill in Section 5, the following headings are used:

- Versions applicable: For which of the four versions (Table 3) this skill is applicable.
- Description: A brief general description of the skill.
- Rationale: The reason why this skill has been included.
- Equipment: Suggested equipment (other than the wheelchair) and set-up, if any. Equivalent alternatives may be used.
- Starting positions: If other than the general starting positions described in section 2.18, the starting positions are described for the wheelchair user, the wheelchair, the tester and the spotter(s). These positions may need to be altered, depending upon the subject's approach to the skill.
- Instructions to subject: An example of the language that the tester might use in directing the objective completion of the skill. Also, any actions by the tester are noted here.
- Capacity criteria: If success on the screening questions (see Questionnaire version above) is a strongly recommended or mandatory pre-condition to attempting the skill, it is noted here. Also, it is noted here whether success or failure on a related harder or easier skill (e.g. inclines of different slopes) may result in a pass or a fail without needing to actually attempt the skill. Also noted in this section is what must be accomplished to pass the skill, in addition to the general scoring criteria described in section 2.24.
- Safety criteria: In addition to the general scoring criteria described in section 2.25, this section lists the criteria for considering the skill as appropriate for an 'unsafe' score, as distinct from risks that are only sufficiently serious to be recorded as comments.
- Caregiver considerations: Any special considerations will be noted here that are not covered in section 2.2, if the test subject is the caregiver.
- Powered wheelchair considerations: Any special considerations will be noted here if the wheelchair is powered.

5.1 Moves controller away and back	
Versions applicable	• WST-M/WCU **X** WST-M/CG **X** • WST-P/WCU ✔ WST-P/CG ✔
Description	• The subject moves the controller (e.g. joystick) away from its usual operating position and then returns it to its original position.
Rationale	• This skill is useful when the controller is in the way for some activities (e.g. approaching a table, feeding, transfers). Some wheelchair users may need to move the controller in order to change the modes or speed.
Equipment	• None.
Starting positions	• Wheelchair: controller in its usual operating position and the power off. • Spotter: beside the wheelchair, on the side of the controller.
Instructions to subject	• "Move the controller out of the way. Return the controller to its usual position."
Capacity criteria	• The subject successfully and safely moves the controller away from its usual operating position and then returns it to the original position. Within the limits of the controller design, the controller should be moved sufficiently out of the way so that it would not interfere with closely approaching a table of the same height. On restoring the controller to the operating position, it should be secured in this position, to the extent possible.
Safety criteria	• Criteria for awarding unsafe score: o General criteria. • Comments only: o Pinch of any body parts.
Caregiver considerations	• None.
Powered wheelchair considerations	• None.

5.2 Turns controller on and off	
Versions applicable	• WST-M/WCU **X** WST-M/CG **X** • WST-P/WCU ✔ WST-P/CG ✔
Description	• The subject turns the controller on and off.
Rationale	• The functions of the powered wheelchair require power.
Equipment	• None.
Starting positions	• Wheelchair: controller on or off, whichever is the case when the skill assessment begins. • Spotter: beside the wheelchair, on the side of the controller.
Instructions to subject	• "Turn the power on. Turn the power off." The order is not important as long as both actions are assessed.
Capacity criteria	• The subject successfully and safely turns the controller on and off.
Safety criteria	• Criteria for awarding unsafe score: o General criteria. • Comments only: o If the subject believes that he/she has turned the power off but it remains on.
Caregiver considerations	• None.
Powered wheelchair considerations	• None.

5.3 Selects drive modes and speeds	
Versions applicable	• WST-M/WCU **X** WST-M/CG **X** • WST-P/WCU ✔ WST-P/CG ✔
Description	• The subject operates the controller to switch between drive modes and speeds.
Rationale	• Powered wheelchairs vary, but most allow the user to select different performance parameters for different environments. • Most powered wheelchairs provide an opportunity for the user to operate the wheelchair in different modes and speeds. User-adjustable settings include mode, speed, direction and whether cruise control is on or off. The controller settings that are most appropriate for driving slowly in tight quarters are different from the settings that would work best when ascending inclines or curbs.
Equipment	• None.
Starting positions	• Wheelchair: controller in operating position and turned on. • Spotter: beside the wheelchair, on the side of the controller.
Instructions to subject	• ”Put the wheelchair controller into each of the drive and speed settings that you can, one at a time. Put your chair back into the original drive mode/speed”.
Capacity criteria	• The subject successfully and safely switches the joystick controller through all available drive modes and/or speeds and returns to the original driving mode when asked. • If the wheelchair has both adjustable modes and speeds, the subject must be able to handle both for a pass.
Safety criteria	• Criteria for awarding unsafe score: o General criteria. • Comments only: o If the subject believes that he/she is in the original driving mode and/or speed when he/she is not.
Caregiver considerations	• None.
Powered wheelchair considerations	• None.

5.4 Controls tilt function	
Versions applicable	• WST-M/WCU **X** WST-M/CG ✔ • WST-P/WCU ✔ WST-P/CG ✔
Description	• The subject tilts the wheelchair back from the upright position and then restores the wheelchair to the upright position. In a tilt, the angle between the wheelchair seat and back remain the same, but the angle from the horizon changes.
Rationale	• Wheelchairs capable of variable rear tilt are used for a variety of reasons, including pressure relief, comfort, to enhance breathing, postural control, stability (e.g. to prevent falling forward from the wheelchair when striking an obstacle), to enhance transfers, facilitate bladder management, reduce spasticity or reduce edema.
Equipment	• None.
Starting positions	• Wheelchair: Start with whatever extent of tilt the person is in so as not to demonstrate the skill. • Spotter: beside the wheelchair, on the side of the controller.
Instructions to subject	• "Tilt the wheelchair back fully. Bring the wheelchair back into the fully upright position."
Capacity criteria	• The subject successfully and safely tilts the wheelchair back fully (30º or more, if available) from the starting position and then restores the wheelchair to the fully upright position.
Safety criteria	• Criteria for awarding unsafe score: o General criteria. • Comments only: o If the wheelchair cannot be restored from the tilted-back position to an extent that permits the subject to operate the wheelchair. o If any of the wheelchair user's body parts get pinched during the position change.
Caregiver considerations	• A caregiver may use rear anti-tip devices for a manual wheelchair to rest against, if the tilted-back wheelchair is stable in this position. To assess rear stability in the tilted-back position, the wheelchair user may be asked to reach backwards with one arm. To assess forward stability (i.e. the wheelchair not falling forward so that the casters are back on the floor), the wheelchair user may be asked to reach forward with both hands and touch his/her knees.
Powered wheelchair considerations	• None.

5.5 Controls recline function	
Versions applicable	• WST-M/WCU **X** WST-M/CG ✔ • WST-P/WCU ✔ WST-P/CG ✔
Description	• The subject reclines the wheelchair back from the upright position and then restores the wheelchair to the upright position. Recline occurs when the back of the wheelchair tilts back but the seat does not.
Rationale	• Wheelchairs capable of variable recline are used for a variety of reasons, including pressure relief, comfort, to enhance breathing, postural control, stability (e.g. to prevent falling forward from the wheelchair when striking an obstacle), to enhance transfers, facilitate bladder management, reduce spasticity or reduce edema.
Equipment	• None.
Starting positions	• Wheelchair: Start with whatever extent of tilt the person is in so as not to demonstrate the skill. • Spotter: beside the wheelchair, on the side of the controller.
Instructions to subject	• "Recline the wheelchair back fully. Bring the wheelchair back into the fully upright position."
Capacity criteria	• The subject successfully and safely reclines the wheelchair fully (30º or more, if available) from the starting position and then restores the wheelchair to the fully upright position.
Safety criteria	• Criteria for awarding unsafe score: o General criteria. • Comments only: o If the wheelchair cannot be restored from the reclined-back position to an extent that permits the subject to operate the wheelchair. o If any of the wheelchair user's body parts get pinched during the position change.
Caregiver considerations	• None.
Powered wheelchair considerations	• None.

5.6 Disengages and engages motors	
Versions applicable	• WST-M/WCU **X** WST-M/CG **X** • WST-P/WCU ✔ WST-P/CG ✔
Description	• The subject disengages and engages the motors.
Rationale	• Disengaging the motors allows the wheelchair to be pushed manually without power (e.g. by a caregiver if the battery is dead).
Equipment	• None.
Starting positions	• Wheelchair: motors engaged. • Spotter: beside the wheelchair, on the side that the subject leans toward.
Instructions to subject	• "Disengage the motors of the wheelchair, so that the wheelchair can be pushed by hand. Engage the motors".
Capacity criteria	• The subject successfully and safely disengages and engages the motors. • The tester should confirm that the motors have been disengaged by checking if the wheelchair can be rolled a short distance. • For some powered wheelchairs, the power may need to be turned off for the wheelchair to be easily pushed. Failure to do so may result in either a failing grade or only a comment depending upon the difficulty that the tester experiences in moving the wheelchair. • The tester should confirm that the motors have been engaged by checking if the wheelchair cannot be rolled. • The subject may get out of the wheelchair to perform this task, but no sitting surface other than the floor or ground may be used.
Safety criteria	• Criteria for awarding unsafe score: o General criteria.
Caregiver considerations	• None.
Powered wheelchair considerations	• None.

5.7 Operates battery charger	
Versions applicable	• WST-M/WCU **X** WST-M/CG **X** • WST-P/WCU ✔ WST-P/CG ✔
Description	• The subject operates the battery charger.
Rationale	• Powered wheelchairs utilize battery power. The battery needs to be charged regularly, as often as daily.
Equipment	• The battery charger used with the wheelchair.
Starting positions	• Wheelchair: facing the battery charger and 0.5m away from it. The battery charger should be plugged into the power source. • Spotter: beside the wheelchair, on the side that the subject leans toward.
Instructions to subject	• "Set up the wheelchair so that the battery can be charged. Restore the wheelchair to its original condition."
Capacity criteria	• The subject successfully and safely attaches the battery charger to the wheelchair, activates the battery charge function and then reverses the procedure. • The subject may get out of the wheelchair to perform this task, but no sitting surface other than the floor or ground may be used. • If the battery charger is not available where the WST is being performed, a No Part (NP) score should be awarded and this should be noted in the Comments section.
Safety criteria	• Criteria for awarding unsafe score: o General criteria. o If the subject handles the electricity in an unsafe manner (e.g. in a wet environment).
Caregiver considerations	• None.
Powered wheelchair considerations	• None.

5.8 Rolls forward 10m	
Versions applicable	• WST-M/WCU ✔ WST-M/CG ✔ • WST-P/WCU ✔ WST-P/CG ✔
Description	• The subject propels the wheelchair 10m forwards on a smooth level surface.
Rationale	• Forward rolling is a skill used during many wheelchair activities. The forward propulsion distance (10m) is intended to simulate moving about indoors or the crossing of a two-lane street.
Equipment	• A smooth level surface, 1.5m wide and 10m long. • Starting and finishing lines at 0 and 10m. • Space at least 1.5m before the starting line and beyond the finishing line.
Starting positions	• Wheelchair: stationary, facing the starting line, with the leading wheel axles behind it. • Spotter: behind the wheelchair, holding onto the spotter strap with one hand.
Instructions to subject	• ”Move the wheelchair forwards over the finish line without going outside of these boundaries (indicate them). Move at a speed fast enough to cross a street.” • The tester should indicate where he/she wishes the subject to stop on completion of the skill rather than emphasizing the finish line. Otherwise, the subject may misinterpret the instruction to mean that he/she is supposed to stop just short of the line rather than beyond it.
Capacity criteria	• Any safe forward propulsion method is acceptable. • The end of the task is when the caster axles cross the finish line and the subject comes to a controlled stop. Subjects who stop short of the finish line may be prompted, without penalty, to continue until the caster axles are over the finish line. • If a solid barrier is used on either side, the subject may allow the wheelchair to gently slide along or glance off the barrier as long as there is no injury. • If a wheel strays outside the lateral boundaries, a failing score should be given.
Safety criteria	• Criteria for awarding unsafe score: o General criteria. o Full rear tip when accelerating. • Comments only: o If there is a transient rear tip as the subject accelerates.

Caregiver considerations	• None.
Powered wheelchair considerations	• None.

5.9 Rolls forward 10m in 30s	
Versions applicable	• WST-M/WCU ✔ WST-M/CG ✔ • WST-P/WCU ✔ WST-P/CG ✔
Description	• The subject propels the wheelchair 10 meters forwards on a smooth level surface within 30 seconds. • Note: although scored separately, this skill is evaluated together with the "rolls forward 10m" skill one (#5.8).
Rationale	• As for "rolls forward 10m" skill (#5.8). • Timing this skill provides a means of identifying whether the subject would be able to get across a street quickly enough to be safe (e.g. when traffic flow is controlled by lights). Although there is considerable variability, most traffic signals provide at least 30s for a full cycle.
Equipment	• As for "rolls forward 10m" skill (#5.8). • Means of recording time to the nearest second.
Starting position	• As for "rolls forward 10m" skill (#5.8).
Instructions to subject	• As for "rolls forward 10m" skill (#5.8).
Capacity criteria	• As for "rolls forward 10m" skill (#5.8) except that the distance must be covered in 30 seconds. • Comments section: As an option, when more detail is desired, the Wheelchair Propulsion Test (described elsewhere on the website) may be performed as part of this skill.
Safety criteria	• As for "rolls forward 10m" skill (#5.8).
Caregiver considerations	• None.
Powered wheelchair considerations	• None.

5.10 Rolls backward 5m	
Versions applicable	• WST-M/WCU ✔ WST-M/CG ✔ • WST-P/WCU ✔ WST-P/CG ✔
Description	• The subject propels the wheelchair 5 meters backwards on a smooth level surface.
Rationale	• Backward rolling is a skill used during many wheelchair activities.
Equipment	• A smooth level surface, 1.5m wide and 5m long. • Starting and finishing lines at 0 and 5m. • Space at least 1.5m before the starting line and beyond the finishing line.
Starting positions	• Wheelchair: the back of the wheelchair facing the starting line and the rear-wheel axles behind it. • Spotter: behind the wheelchair, holding onto the spotter strap.
Instructions to subject	• ”Move the wheelchair backwards over the finish line (indicate it) without going outside of these boundaries (indicate them)”.
Capacity criteria	• Any safe backward propulsion method is acceptable. • The end of the task is when the rear-wheel axles cross the finish line and the subject comes to a controlled stop. Subjects who stop short of the finish line may be prompted, without penalty, to continue until the rear-wheel axles are over the finish line. • If a solid barrier is used on either side, the subject may slide along or glance off the barrier. • If a wheel strays outside the lateral boundaries, a failing score should be given.
Safety criteria	• Criteria for awarding unsafe score: o General criteria. o Full rear tip as the subject stops. • Comments only: o Transient rear tip as the subject stops. o Failure to look backwards over the shoulders to monitor that the path is clear.
Caregiver considerations	• None.
Powered wheelchair considerations	• None.

5.11 Turns 90° while moving forward	
Versions applicable	• WST-M/WCU ✔ WST-M/CG ✔ • WST-P/WCU ✔ WST-P/CG ✔
Description	• The subject turns the wheelchair 90° to the left and right while moving forwards.
Rationale	• Moving turns are often necessary to avoid obstacles or to change direction.
Equipment	• At least 1.2m wide level surface with a 90° turn. Solid barriers (preferred) or lines may be used to define the lateral limits. • At least 2m space before and beyond the corner.
Starting positions	• Wheelchair: facing the corner, with the caster axles at least 0.5m from the corner. • Spotter: Behind the wheelchair, holding onto the spotter strap, unless the subject has safely performed the "rolls forward 10m" skill (#5.8), in which case the spotter need only be nearby.
Instructions to subject	• "Move the wheelchair forward and turn around this corner (indicate it). Now do the same thing, turning in the other direction."
Capacity criteria	• The endpoint is when the wheelchair is around the corner, 90° from its original orientation and with the leading wheel axles at least 0.5m from the corner. Subjects who stop short of this distance may be prompted, without penalty, to continue. • The subject may touch (or even use) the walls. • If lines are used to define the lateral limits, to simplify scoring, it is permissible for parts of the wheelchair user or wheelchair (e.g. a foot on a footrest) to extend beyond the lines, as long as the wheels or feet on the floor stay within the prescribed limits.
Safety criteria	• Criteria for awarding unsafe score: o General criteria. o Full rear tip when accelerating. o If the spotter needs to intervene to prevent the wheelchair user's toes from being crushed, especially with a powered wheelchair. • Comments only: o Minor foot or hand injury on corner.
Caregiver considerations	• None.
Powered wheelchair considerations	• None.

5.12 Turns 90° while moving backward	
Versions applicable	• WST-M/WCU ✔ WST-M/CG ✔ • WST-P/WCU ✔ WST-P/CG ✔
Description	• The subject turns the wheelchair 90° to the left and right while moving backwards.
Rationale	• Moving turns are often necessary to avoid obstacles or to change direction.
Equipment	• As for previous skill.
Starting positions	• Wheelchair: the back of the wheelchair facing the corner, with the rear-wheel axles at least 0.5m from the corner. • Spotter: Behind the wheelchair, holding onto the spotter strap, unless the subject has safely performed the "rolls backward 5m" skill (#5.10), in which case the spotter need only be nearby.
Instructions to subject	• "Move the wheelchair backward and turn around this corner (indicate it). Now do the same thing, turning in the other direction."
Capacity criteria	• The endpoint is when the wheelchair is around the corner, 90° from its original orientation and with the leading wheel axles at least 0.5m from the corner. Subjects who stop short of the finish line may be prompted, without penalty, to continue. • If lines are used to define the lateral limits, to simplify scoring, it is permissible for parts of the wheelchair user or wheelchair (e.g. a foot on a footrest) to extend beyond the lines, as long as the wheels or feet on the floor stay within the prescribed limits.
Safety criteria	• Criteria for awarding unsafe score: o General criteria. • Comments only: o Minor foot or hand injury on corner.
Caregiver considerations	• None.
Powered wheelchair considerations	• None.

5.13 Turns 180°in place	
Versions applicable	• WST-M/WCU ✔ WST-M/CG ✔ • WST-P/WCU ✔ WST-P/CG ✔
Description	• The subject turns the wheelchair around to face in the opposite direction, while remaining within a square space with 1.5 meter sides.
Rationale	• Turning around in tight spaces is a common challenge for wheelchair users.
Equipment	• Smooth level surface and a 1.5m square, marked out by lines on the floor. Solid barriers should not be used (see performance criterion #3 below).
Starting positions	• Wheelchair: in the approximate centre of the square, facing one side of the square. • Spotter: near the wheelchair.
Instructions to subject	• "Keeping the wheelchair within this square (indicate it), turn the wheelchair around until you are facing the opposite direction. Now turn the chair in the other direction (indicate it) until you are back where you started."
Capacity criteria	• If the subject turns at least 160° in each direction, a pass may be awarded. • If the subject has turned, but has not yet turned at least 160°, he/she may be prompted (e.g. "Keep going") without penalty. • All parts of the wheelchair and subject that touch the ground must remain within the square. However, to simplify scoring, it is permissible for parts of the wheelchair user's body or wheelchair (e.g. a foot on a footrest) to extend beyond the lines, as long as the feet and wheels on the floor stay within the prescribed limits.
Safety criteria	• Criteria for awarding unsafe score: o General criteria.
Caregiver considerations	• None.
Powered wheelchair considerations	• None.

5.14 Maneuvers sideways	
Versions applicable	• WST-M/WCU ✔ WST-M/CG ✔ • WST-P/WCU ✔ WST-P/CG ✔
Description	• The subject maneuvers the wheelchair sideways parallel to an object (e.g. bed or wall). The skill is performed towards both the left and right sides.
Rationale	• Positioning oneself in a tight space involves maneuvering of the wheelchair, to move the wheelchair closer to or farther away from objects.
Equipment	• Target lateral barrier or line on at least one side. • Means to limit the extent of forward-backward movement to 1.5m.
Starting positions	• Wheelchair: parallel to the target and the closest rear wheel at least 0.5m from it. • Spotter: near the wheelchair.
Instructions to subject	• "Get this wheel (indicate left or right) as close as you can to this wall/line (indicate it), using the space available (indicate it)."
Capacity criteria	• On completion, the most lateral aspect of the wheelchair must be within 10 cm of the target. For manual wheelchairs, this will usually be the rear-wheel hand-rim. For powered wheelchairs, this will usually be the drive wheel. The wheelchair may touch the lateral barrier. • On completion, the fore-aft axis of the wheelchair must not be at an angle of >20 degrees from the wall. • If the wheelchair is close to the desired finish position, but not quite there (too far away or at an angle), it is permissible to prompt the subject without penalty (e.g. "Can you get a little closer?" or "Can you straighten out the wheelchair?"). • Most subjects will use to-and-fro motions (as in parallel parking a car), but "bunny hopping" is permitted. • The parts of the wheelchair or subject in contact with the ground must stay within the 1.5m forward-backward limits, but other parts of the wheelchair or subject (e.g. feet on footrests) may extend beyond these limits without penalty. • It is permissible for the subject to move from the starting position into one in which the lateral barrier is approached from the front or back, turning into the final position.
Safety criteria	• Criteria for awarding unsafe score: o General criteria. • Comments only:

	o Minor hand scrape on barrier.
Caregiver considerations	• None.
Powered wheelchair considerations	• As noted above, unlike manual wheelchairs, there is no hand-rim so the endpoint is when the wheel corresponding to the widest dimension of the wheelchair is within 10cm of the target.

5.15 Gets through hinged door in both directions	
Versions applicable	• WST-M/WCU ✔ WST-M/CG ✔ • WST-P/WCU ✔ WST-P/CG ✔
Description	• The subject opens, passes through and closes a hinged door that opens away from the subject, then repeats the task in the opposite direction (with the door opening toward the subject).
Rationale	• Wheelchair users frequently encounter such hinged doors or gates.
Equipment	• Door ~81cm wide, preferably with little or no resistance to opening. • Preferably a lever knob >10 cm in length and 75-90cm above the floor. • Preferably no threshold (evaluated in skill #5.30). • There should be enough space (preferably at least 1.5m^2), on both sides of the door, to allow the subject to maneuver.
Starting positions	• Wheelchair: facing the closed door with the casters at least 0.5m from it. • Spotter: near the wheelchair and the door.
Instructions to subject	• "Open the door, move the wheelchair through it and close it behind you. Now, go back through the door the other way."
Capacity criteria	• If the subject leaves the door slightly ajar, he/she may be prompted, without penalty, to finish closing it. • The subject may use the door-frame to assist in passing through the door. • The skill in each direction is completed when the door closes firmly. • The subject may close the door by reaching back for it. Alternatively, the subject may proceed away from the door and then turn around and come back to close it. • During the course of any single attempt, a subject may use different approaches. • If the subject is unsuccessful at getting through the door when it opens away from him/her, there is no need to attempt the skill in the other direction. • The order of performing the two components of this skill test is not important.
Safety criteria	• Criteria for awarding unsafe score: o General criteria. o Full tip or fall due to reaching and/or pulling on the door handle. o If the subject attempts to close the door by placing the fingers in the gap between the door and the frame on the

	hinged side of the door, this is considered dangerous. If the spotter needs to intervene to prevent pinching, a failing score is awarded. Otherwise a note in the Comments section would be appropriate to deal with later. • Comments only: o Hand scrape between door frame and handrim.
Caregiver considerations	• None.
Powered wheelchair considerations	• None.

5.16 Reaches 1.5m high object	
Versions applicable	• WST-M/WCU ✔ WST-M/CG **X** • WST-P/WCU ✔ WST-P/CG **X**
Description	• The subject reaches up to touch an object 1.5m above the floor.
Rationale	• A combination of upward and sideways or forward reaching is often needed when reaching for a light switch, elevator button or cupboard. This skill is not applicable for caregivers, because it is not a challenge for most caregivers.
Equipment	• Target no larger than 2.5 cm in diameter 1.5m above the floor.
Starting positions	• Wheelchair: facing the target with the caster axles at least 0.5m away. • Spotter: near the wheelchair and close to the target.
Instructions to subject	• "Touch the target (indicate it). You may move your wheelchair."
Capacity criteria	• The task is to reach up under control, touch the target and then to resume the normal sitting position. • The subject may use either hand. • A reaching aid may be used, if carried by the subject. • If the subject chooses to remove or reposition parts of the wheelchair (e.g. the footrest) to improve the reach (e.g. by standing), this is permitted as long as the subject can remove and replace the parts independently. After touching the target, the subject may be prompted, without penalty, to restore the wheelchair to its original state. • The finishing position is with the wheelchair user sitting upright. • A stand-up or elevating wheelchair may be used, as long as the subject can operate it independently.
Safety criteria	• Criteria for awarding unsafe score: o General criteria. o Tip or fall when reaching, leaning or standing up. o If the wheelchair user chooses to stand to accomplish the task, although strongly recommended, it is not necessary for the brakes to be locked or the footrests to be cleared away. Some wheelchair users can accomplish the task in a careful and safe manner without these precautions. However, if the subject loses balance, requiring spotter intervention, a failing score is awarded. If a wheelchair user attempts to stand with a foot on a footrest, the spotter should intervene and a failing score should be awarded. Similarly, if the wheelchair user stands up without locking the brakes, the wheelchair must not roll backwards far

	enough to cause a fall. • Comments only: o If the wheelchair user, in the course of leaning in any direction, induces a wheelchair tip that is transient and self-contained.
Caregiver considerations	• Not applicable to caregivers.
Powered wheelchair considerations	• None.

5.17 Picks object from floor	
Versions applicable	• WST-M/WCU ✔ WST-M/CG **X** • WST-P/WCU ✔ WST-P/CG **X**
Description	• The subject picks a small object up from the floor.
Rationale	• Objects that need to be picked up from the floor or ground vary from those as small and light as a coin or a piece of paper to those as bulky and heavy as a young child. We have chosen an object of intermediate size and weight for the test. Not applicable for caregivers, because it is not a challenge for most caregivers.
Equipment	• Piece of wood (pine, 5x10x10cm, weight ~0.2kg) placed flat on the floor. Any object of roughly equivalent size and weight (e.g. a book or a stick) may be used.
Starting positions	• Wheelchair: facing the target with the caster axles at least 0.5m away. • Spotter: near the wheelchair and the floor object.
Instructions to subject	• "Pick up the object (indicate it). You may move your wheelchair."
Capacity criteria	• The finishing position is with the object in the lap or in the hand and the wheelchair user sitting upright. • The subject may use either hand. • A reaching aid may be used, if carried by the subject. • If the subject chooses to remove or reposition parts of the wheelchair (e.g., the footrest) to improve the reach, this is permitted as long as the subject can remove and replace the parts independently. After picking up the object, the subject may be prompted, without penalty, to restore the wheelchair to its original state.
Safety criteria	• Criteria for awarding unsafe score: o General criteria. o Tip or fall when reaching, leaning or standing up. o If the wheelchair user chooses to stand to accomplish the task, although strongly recommended, it is not necessary for the brakes to be locked or the footrests to be cleared away. Some wheelchair users can accomplish the task in a careful and safe manner without these precautions. However, if the subject loses balance, requiring spotter intervention, a failing score is awarded. If a wheelchair user attempts to stand with a foot on a footrest, the spotter should intervene and a failing score is awarded. Similarly, if the wheelchair user stands up without locking the brakes, the wheelchair must not roll backwards far

	enough to cause a fall. • Comments only: o If the wheelchair user, in the course of leaning in any direction, induces a wheelchair tip that is transient and self-contained.
Caregiver considerations	• Not applicable to caregivers.
Powered wheelchair considerations	• The spotter should intervene if he/she is concerned that the subject might move the wheelchair in a way that might result in the fingers being run over by the wheels. 'Fail' and 'unsafe' scores should be given.

5.18 Relieves weight from buttocks	
Versions applicable	• WST-M/WCU ✔ WST-M/CG **X** • WST-P/WCU ✔ WST-P/CG **X**
Description	• The subject relieves weight from both buttocks, although not necessarily at the same time.
Rationale	• Pressure relief is important for the prevention of pressure sores. Ideally, pressure relief should be performed often (at least every 20 minutes) and for prolonged periods of time (at least 2 minutes). However, for the purposes of this test, a few seconds is considered representative of the subject's capability. This skill is not considered to be applicable for caregivers because a caregiver cannot usually perform this skill without assistance or aids, other than by tilting or reclining the wheelchair (skills that are assessed elsewhere).
Equipment	• None.
Starting positions	• Spotter: near the wheelchair, on the side towards which the subject leans (if any).
Instructions to subject	• "Take the weight off your bottom, and hold your position until I tell you to stop."
Capacity criteria	• Pressure should be relieved for a count of 3. • While the pressure is being relieved, the tester should be able to easily slide a hand between pressuresensitive areas (the ischial tuberosities, coccyx and greater trochanters) and the wheelchair or cushion.`Placing a hand into the pressure-sensitive areas is not required for the WST and this should only be done with the permission of the subject. The tester must make his/her best judgment about the extent of the pressure relief achieved. • It is permissible for the wheelchair user to stand up, push-up with both arms, bridge (lifting the buttocks by extending the legs, pushing the feet on the footrests or floor), lean side to side or lean forward to relieve pressure. If the wheelchair can be tilted or reclined to 40° or more, this is considered a pass, even though this is not as effective a means of pressure relief as leaning. • If the subject leans, he/she must lean to both sides and needs to recover independently (e.g. using push-handles or armrest). • If the subject's wheelchair is fitted with an alternating pressure cushion, the tester needs to be convinced that there is adequate relief under the pressure points.
Safety criteria	• Criteria for awarding unsafe score:

	○ General criteria. ○ Tip or fall when leaning.
Caregiver considerations	• Not applicable to caregivers.
Powered wheelchair considerations	• None.

5.19 Transfers from wheelchair to bench and back	
Versions applicable	• WST-M/WCU ✔ WST-M/CG ✔ • WST-P/WCU ✔ WST-P/CG ✔
Description	• The wheelchair user transfers from the wheelchair to another surface and back again. The subject positions the wheelchair, then removes and restores wheelchair components as necessary to complete the transfer.
Rationale	• A transfer is a commonly used skill to move between the wheelchair and a chair, bed, tub, toilet, car or other surface. This skill evaluation, as part of the WST, should only be considered a representative transfer. More difficulty may be experienced when transferring to and from other surfaces.
Equipment	• The following transfer surface is suggested (although any equivalent one is acceptable): a bench with a padded flat surface, no backrest and no armrests. The sitting surface should be at least 1.0m wide, at least 0.5m deep and 45-47 cm high. The bench legs should have non-slip material (e.g. rubber) on their undersurfaces. • A transfer board (a piece of wood or plastic with bevelled edges) should be made available for subjects who ordinarily use one. The subject may use his/her own equipment (if carried). The transfer board should be on the transfer bench within the subject's reach.
Starting positions	• Wheelchair user: seated in the wheelchair, and oriented in the chair as if he/she is ready to propel the chair (e.g. feet on footplates, if used). • Wheelchair: facing the bench and at least 0.5m from it. • Spotter: In front of the wheelchair and slightly to one side, close enough to catch the subject if he/she falls and to prevent the wheelchair from rolling away, sliding away or tipping.
Instructions to subject	• "Transfer from the wheelchair to the bench (indicate it). Transfer back into the wheelchair. Get the wheelchair back into operational condition and move it away from the bench."
Capacity criteria	• Success on the screening questions is strongly recommended before being allowed to proceed to the objective testing of this skill. If the subject is the wheelchair user and assistance is always required, then there is no need to proceed, because a failing grade will be awarded. • In general, to award a passing score, the wheelchair user must be able to independently and safely set up the wheelchair for the transfer, transfer to and from the bench without incident, and

	restore the wheelchair to its operational condition. • All safe, independent transfer techniques are acceptable. If the WST is performed in the subject's home, other assistive technology may be used (e.g. ceiling lift). Any such equipment should be noted in the Comments section. For a standing-pivot transfer, although inefficient, a 270° turn (vs. the usual 90°) is acceptable. • If, during the transfer, the subject is sitting on the bench with the transfer board under him/her, it is permissible to cue the subject to "move the transfer board away from you" without penalty. The transfer is not considered complete until the subject is off the transfer board. • Wheel locks: The wheel locks (brakes), if any, may or may not be used. For powered wheelchairs, the controller may be on or off. • Armrests: If armrests need to be detached or moved out of the way for the transfer, a clear path is required. Partially clearing the armrest is not acceptable (e.g. removing only the arm pad). After transferring back into the chair, the armrest must be restored to the original position. The subject may be prompted, without penalty, to "Put your arm back on the armrest, the way that it was before you began". If the wheelchair user's arm is secured to the arm support he/she must independently release and, later replace his/her arm in the original position and state. • Footrests: Although it is recommended, the subject need not clear the footrests if the transfer can be effectively and safely completed without doing so. After transferring back into the chair, the footrests and feet should be as they were prior to the transfer. The subject may be prompted, without penalty, to "Put your feet back on the footrests, the way that they were before you began". • Positioning belts (or other restraints): If a positioning belt is intended for independent use and is fastened around the wheelchair user at the beginning of the test, then he/she is expected to be able to undo it and fasten it again after transferring back into the wheelchair. If the wheelchair is equipped with a positioning belt, but the wheelchair user is not using it, the subject is not required to be able to use it. If the wheelchair user has a rear-closing seat belt or other restraint that is not intended for independent use, this is usually considered an automatic fail, unless the WST is being used to assess either caregiver function or the combined function of a caregiver and wheelchair user. • Chair position: If the subject needs to reposition the unoccupied

	wheelchair between the transfer out of the wheelchair and the transfer back into it, the subject must do so him/herself.
Safety criteria	• Criteria for awarding unsafe score: o General criteria. o Tip or fall when reaching, standing or sitting back down. o Fall between wheelchair and bench. o If the wheelchair rolls or slides away from its starting position by enough to cause a fall. o In the course of a standing pivot transfer, tripping over footrests and staggering enough to require spotter intervention. • Comments only: o If the controller is left on during the transfer. o Pinch of fingers under sliding board. o Scrape of buttocks over rear wheel or brake extension during sideways transfer. o Scrape of lower limb over footrest. o Poor ergonomic technique. o If the subject falls onto the transfer bench and cannot get up without help, this warrants a 'fail' score for capacity but is not necessarily a sufficient reason for an 'unsafe' score.
Caregiver considerations	• The caregiver may receive assistance from the wheelchair user in performing the skill. This is an exception to the general rule that the wheelchair user should not assist when the caregiver is being assessed alone.
Powered wheelchair considerations	• None.

5.20 Folds and unfolds wheelchair	
Versions applicable	• WST-M/WCU ✔ WST-M/CG ✔ • WST-P/WCU **X** WST-P/CG **X**
Description	• The subject folds the wheelchair, and then unfolds it. • Note: This skill is usually assessed in combination with the transfer skill, while the wheelchair user is seated on the transfer bench.
Rationale	• For transport or storage, the size of the wheelchair may need to be reduced. This can be done by folding the wheelchair. Removal of the rear wheels or other parts is a useful way to further diminish the size and weight of the wheelchair.
Equipment	• Transfer bench. • Tape measure to measure the width of the folded wheelchair, if necessary.
Starting positions	• Wheelchair user: seated on the transfer bench or standing beside the wheelchair. • Wheelchair: in the same position and condition as immediately after the wheelchair user had transferred out of it. • Spotter: near the subject and wheelchair.
Instructions to subject	• "Fold the wheelchair as tightly as you can and remove the rear wheels, if you can do so without tools. Put the wheels back on and unfold the wheelchair so that you can get back into it."
Capacity criteria	• If the subject does not know that the wheelchair folds or that the rear wheels are removable without tools, a "fail" should be awarded. • The wheelchair user must be out of the wheelchair to attempt this skill. If the transfer cannot be achieved independently, the tester has the options of either assisting the wheelchair user out of the wheelchair or assessing the skill by interview alone. If the latter option is chosen (i.e. a blended WST/WST-Q), this should be noted in the Comment section. • If the wheelchair is incompletely folded, it is acceptable to prompt the subject without penalty (e.g. "Can you get it a little tighter?" or "How about the rear wheels?"). • If the wheelchair is incompletely restored to its original condition, it is permissible, without penalty, to cue the subject by inquiring "Is the wheelchair in the same condition that it was in before you folded it?" • If wheelchair components or accessories (e.g. cushion, rigid seat, backrest, knapsack, footrests) need to be removed to fold the wheelchair to a width of less than 50% of the open width, the subject

	must do so independently. • For a rigid chair with a backrest that folds forward, the backrest canes and the seat rails should be as close to parallel with each other as is mechanically possible. If the cushion prevents this, the tester may prompt the subject by asking "Can you get this folded more tightly?", but the tester must not suggest the solution of removing the cushion. • The rear wheels should be removed if this can be done without tools (e.g. if they are of the quick-release type). • It is acceptable for the subject to use the foot to help fold and unfold the wheelchair. • For the unfold component of the skill, the wheelchair should be opened fully. • If the wheelchair has been opened in a way that precludes full use of the wheelchair (e.g. by tangling a seatbelt strap in a way that will cause it to rub on a wheel, or seat rails not sitting in rail saddles), a pass must not be awarded. The tester should correct the problem before the wheelchair user gets back into the wheelchair. • Comments only: o Putting a contoured cushion in backwards is incorrect, because of the potential for causing a pressure sore, but not sufficient to warrant a 'fail' score.
Safety criteria	• Criteria for awarding unsafe score: o General criteria. o Tip or fall. o Pinching fingers between seat rails when they snap down during opening (unfolding) the WC is unsafe and the tester should intervene. • Comments only: o Putting a contoured cushion in backwards is incorrect, because of the potential for causing a pressure sore, but not sufficient to warrant an 'unsafe' score.
Caregiver considerations	• None.
Powered wheelchair considerations	• Not applicable for powered wheelchairs.

5.21 Rolls 100m	
Versions applicable	• WST-M/WCU ✔ WST-M/CG ✔ • WST-P/WCU ✔ WST-P/CG ✔
Description	• The subject propels the wheelchair forwards 100m on a smooth level surface.
Rationale	• The ability to propel for distances of this magnitude allows wheelchair users to get around to a limited extent in the community (e.g. getting from a parking lot to an office or getting around inside a store).
Equipment	• A smooth level surface at least 1.5m wide and 50-100m long is ideal. Using multiple laps of a shorter distance is permissible, but it is preferable for the straight stretches to be at least 25m, to minimize the number of turns. A curved path may be used. • Space at least 1.5m before the starting line and beyond the finishing line.
Starting positions	• Wheelchair: leading wheel axles facing and behind the starting line. • Spotter: Because the subject will already have safely performed the "rolls forward 10m" skill (#5.8), the spotter need merely be nearby.
Instructions to subject	• "Move the wheelchair to the finish line (indicate it or the number of laps). Avoid bumping into anyone or anything that gets in your way."

Capacity criteria	• If the subject fails the "rolls forward 10m" skill, a failing grade should be awarded for the "Rolls 100m" skill.
	• The subject must complete the 100m but there is no time limit and rests are permitted.
	• The subject may propel the wheelchair forwards or backwards.
	• Comments section:
	  • If the subject is unable to complete the full distance, the tester should record in the Comments section approximately how far the subject was able to propel the wheelchair.
	  • Note if the subject drifts consistently to one side (e.g. to left due to left neglect).

Safety criteria	• Criteria for awarding unsafe score:
	  o General criteria.
	• Comments only:
	  o Over-exertion injuries due to unaccustomed exercise.

Caregiver considerations	• None.
Powered wheelchair considerations	• None.

5.22 Avoids moving obstacles	
Versions applicable	• WST-M/WCU ✔ WST-M/CG ✔ • WST-P/WCU ✔ WST-P/CG ✔
Description	• While moving, the subject avoids obstacles approaching from the left and right. • Note: this skill is assessed in conjunction with the "rolls 100m" skill (#5.21).
Rationale	• In addition to stationary obstacles, wheelchair users must avoid moving obstacles (e.g. other wheelchair users, pedestrians).
Equipment	• Corridor or pathway as for the "rolling 100m" skill (#5.21). • An unoccupied manual wheelchair for the tester to push. Although it is permitted, the tester is not expected to endanger him/herself by using his/her body as the moving obstacle.
Starting positions	• As for the "rolls 100m" skill (#5.21). • Tester: the tester stands behind the unoccupied wheelchair, holding the push-handles near the corridor but not in it (e.g. in a doorway or at an intersection). The tester should be able to see the approaching test subject.
Instructions to subject	• As for the "rolls 100m" skill (#5.21). • The tester waits until the wheelchair user gets close. Then, moving at a normal walking speed, the tester pushes the unoccupied wheelchair forward into the path of the test subject and stops. The tester times his/her movement to provide the test subject with 2-3 seconds to avoid a collision. This provision of a moving-obstacle challenge is done again later, from the other side. If a collision appears to be imminent, the tester should take evasive action.
Capacity criteria	• If the subject fails the "rolls forward 10m" skill (#5.8), a failing grade should be awarded for the "avoids moving obstacles" skill. • To pass this skill, the subject must avoid significant contact (i.e. enough to potentially cause injury to the wheelchair occupant or another person). The subject may do so by slowing, stopping and/or changing direction. • The subject need not remain within the boundaries of the corridor and may be prompted, without penalty, to return to the corridor boundaries and to continue with the "rolls 100m" skill (#5.21).
Safety criteria	• Criteria for awarding unsafe score: o General criteria. • If the tester needs to take evasive action to avoid a significant collision, this is considered unsafe.

Caregiver considerations	• None.
Powered wheelchair considerations	• None.

5.23 Ascends 5° incline	
Versions applicable	• WST-M/WCU ✔ WST-M/CG ✔ • WST-P/WCU ✔ WST-P/CG ✔
Description	• The subject propels the wheelchair up a 5° incline.
Rationale	• Inclines are encountered frequently in the natural and built environments. The 5° (~1:12) grade meets the current building codes for ramps in North America.
Equipment	• Incline at least 2.5m long and at least 1.2m wide. • A lip and a handrail on both sides of the incline are desirable, to prevent injuries and for training variations, but they should not be used in the performance of the skill. • The incline should end at the upper end on a level surface or platform that is large enough for wheelchairs of all types, caregivers and WST personnel to turn around safely ($2.0m^2$ or more is recommended). A 15cm-high lip around the open edges of the platform is recommended. • Minimal floor-incline lip.
Starting positions	• Wheelchair: on the level at the bottom of the incline, with the front wheels of the wheelchair facing the incline and at least 0.5m away. • Spotter: Behind the wheelchair, holding onto the spotter strap.
Instructions to subject	• "Move the wheelchair up the ramp, without using the ramp handrails."
Capacity criteria	• The subject may use any type of propulsion, in the forward or backwards direction. • The finishing point is when all wheelchair parts are completely off the incline at the top. • The subject or wheelchair may make contact with the ramp lips or rails without penalty, as long as the rails are not grasped and no wheel goes outside the lateral boundaries of the incline. • Grade aids may be used, but the wheelchair user must be able to independently activate and inactivate them. • Comments only: o If the footrests scrape on the surface at the lower transition, this should be noted because an adjustment of footrest height may be appropriate.
Safety criteria	• Criteria for awarding unsafe score: o General criteria. o Forward tip, fall due to deceleration when striking the lower floor-incline transition.

	○ Hyper-flexion injury of lower limb at the lower floor-incline transition. ○ Rear tip when accelerating on the incline. • Comments only: ○ A transient wheelchair tip. ○ Catching the foot on the floor as the wheelchair continues to move forward, without injury. ○ Over-exertion injuries due to unaccustomed exercise. ○ Thumb laceration by brakes during forward thrusts.
Caregiver considerations	• None.
Powered wheelchair considerations	• None.

5.24 Descends 5° incline	
Versions applicable	• WST-M/WCU ✔ WST-M/CG ✔ • WST-P/WCU ✔ WST-P/CG ✔
Description	• The subject gets the wheelchair down a 5° incline.
Rationale	• As for the "ascends 5° incline" skill (#5.23).
Equipment	• As for the "ascends 5° incline" skill (#5.23).
Starting positions	• Wheelchair: All wheels are on the level platform at the top of the incline with the leading wheels of the wheelchair facing the incline. • Spotter: Behind the wheelchair, holding onto the spotter strap with one hand and the other hand in front of the wheelchair user's shoulder. If using two spotters, one spotter behind the wheelchair, holding onto the spotter strap and a second spotter in front of and beside the wheelchair to resist a forward tip or fall.
Instructions to subject	• "Move the wheelchair down the ramp, without using the ramp handrails. Keep the wheelchair under control."
Capacity criteria	• The finish point is when all wheelchair parts are completely off the incline at the bottom. • The subject may use any type of propulsion (e.g. arm and leg, feet only, forward or backward). • The subject or wheelchair may make contact with the ramp lips or rails without penalty, as long as the rails are not grasped and no wheel goes outside the lateral boundaries of the incline. • The wheelie position may be used for descending all or part of the incline. • The subject must be under control during the full descent, including the transition to level ground. • The subject may stop during the descent. • It is permissible for the subject to use the bottoms of the shod feet as brakes. • Although not generally recommended, it is permissible for the subject to use the wheel locks as rolling brakes (e.g. by partially or repeatedly applying them).
Safety criteria	• Criteria for awarding unsafe score: o General criteria. o Rear tip if performed in wheelie position. o Forward tip, fall due to deceleration when striking the lower floor-incline transition. o Runaway requiring intervention. o Hyper-flexion injury of lower limb.

	• Comments only: o Friction burn of hands. o Dragging the bottoms of unshod feet to slow the wheelchair by friction between the feet and floor. o Dragging the toes, even if the feet are shod. o Catching the foot on the floor as the wheelchair continues to move forward, without injury.
Caregiver considerations	• None.
Powered wheelchair considerations	• Disengaging the motors and letting the wheelchair roll down the ramp is not considered a safe method for the purposes of the WST.

5.25 Ascends 10° incline	
Versions applicable	• WST-M/WCU ✔ WST-M/CG ✔ • WST-P/WCU ✔ WST-P/CG ✔
Description	• The subject propels the wheelchair up a 10° incline.
Rationale	• Inclines with slopes greater than the standard recommended value are encountered frequently in the natural and built environments.
Equipment	• As for "ascends 5° incline" skill (#5.23), except 10° incline at least 1.0m long and at least 1.2m wide.
Starting positions	• As for "ascends 5° incline" skill (#5.23).
Instructions to subject	• "Move the wheelchair up the ramp, without using the ramp handrails."
Capacity criteria	• If the subject fails the "ascends 5° incline" skill, a failing grade should be awarded for the "ascends 10° incline" skill. • As for "ascends 5° incline" skill (#5.23).
Safety criteria	• As for "ascends 5° incline" skill (#5.23).
Caregiver considerations	• None.
Powered wheelchair considerations	• None.

5.26 Descends 10° incline	
Versions applicable	• WST-M/WCU ✔ WST-M/CG ✔ • WST-P/WCU ✔ WST-P/CG ✔
Description	• The subject propels the wheelchair down a 10° incline.
Rationale	• As for the "ascends 10° incline" skill (#5.25). • The appropriate technique for a steep incline often differs from that used for a lesser slope (e.g. descending a moderate or steep incline in the forward wheelie position has a number of benefits).
Equipment	• As for "ascends 10° incline" skill (#5.25).
Starting positions	• As for "descends 5° incline" skill (#5.24).
Instructions to subject	• As for "descends 5° incline" skill (#5.24).
Capacity criteria	• If the subject fails the "descends 5° incline" skill (#5.24), a failing grade for the "descends 10° incline" skill should be awarded. • As for "descends 5° incline" skill (#5.24).
Safety criteria	• As for "descends 5° incline" skill (#5.24).
Caregiver considerations	• A comment should be noted if a caregiver uses the wheelie-forward descent in an ergonomically unsound way.
Powered wheelchair considerations	• None.

5.27 Rolls 2m across 5° side-slope	
Versions applicable	• WST-M/WCU ✔ WST-M/CG ✔ • WST-P/WCU ✔ WST-P/CG ✔
Description	• The subject propels the wheelchair across a side slope without turning downhill significantly.
Rationale	• Side (or cross) slopes are frequently encountered in man-made and natural environments. Sidewalks, for instance, are usually sloped ~2% (1:50) toward the street to allow water to run off, although steeper grades are often found (e.g. where sidewalks cross driveways).
Equipment	• Incline of 5°, 2m long (in the line of progression) and at least 1.2m wide. • Means of monitoring if the wheelchair drifts downhill by greater than 10cm from the starting position. The slope-level transition can be used, or any line parallel to it. • Start and finish lines perpendicular to the line of progression. • At least an extra 1.5m before the starting line and beyond the finishing line.
Starting positions	• Wheelchair user:in whatever position he/she prefers. • Wheelchair: with the brakes off, and all wheels on the sloped surface, oriented in the line of progression across the slope. The downhill main wheel is positioned 10cm up the slope from the line by which it will be possible to detect if the wheelchair has turned or drifted downhill by greater than 10cm. The axles of the leading wheels must be behind the starting line. • Spotter: Slightly behind and downhill from the wheelchair.
Instructions to subject	• "Move the wheelchair across the slope to the finish line (indicate it) without letting the wheels turn downhill below the line (indicate it)."
Capacity criteria	• The finish point is when the axles of the leading wheels cross the finish line. The trailing wheels need not cross the line. • Neither downhill wheel may cross the line 10cm downhill from the starting position.
Safety criteria	• Criteria for awarding unsafe score: o General criteria.
Caregiver considerations	• The caregiver's feet need not remain above the line being avoided because the caregiver's usual position relative to the wheelchair is slightly downhill to the wheelchair.
Powered wheelchair	• None.

considerations	

5.28 Rolls 2m on soft surface	
Versions applicable	• WST-M/WCU ✔ WST-M/CG ✔ • WST-P/WCU ✔ WST-P/CG ✔
Description	• The subject propels the wheelchair 2m on a soft surface.
Rationale	• There are many soft surfaces (e.g. carpet, dirt, grass, gravel, sand or snow) with increased rolling resistance. Propulsion is more difficult on such surfaces and the wheels tend to sink into the surface.
Equipment	• Pathway that includes a soft surface at least 1.5m wide and at least 2.0m long. • There should be an additional 1.5m of soft surface before the starting line and 1.5m beyond the finishing line. • Options for the soft surface include gravel (medium-grade, 5 -6 cm deep), sand (fine grain, 5-6cm deep), gym mat (10cm thick), indoor/outdoor carpet over 5cm open-cell foam, or equivalent. • Note that some sand and gravel areas have lips that make it difficult to get into and out of them. It is the 2m of soft surface that is the focus of this skill, not the entry and exit.
Starting positions	• Wheelchair: On the soft surface with the leading wheel axles behind the starting line. • Spotter: Behind the wheelchair.
Instructions to subject	• "Move the wheelchair over the finish line (indicate it)."
Capacity criteria	• The finish is when the leading wheel axles are beyond the finish line. • All techniques are permitted, such as forward or backward approaches, using the feet or even standing. Sustained or transient wheelies are often necessary. • No wheel may stray outside the designated lateral limits. • During the course of any single attempt, a subject may use different approaches.
Safety criteria	• Criteria for awarding unsafe score: o General criteria. o Rear tip when accelerating.
Caregiver considerations	• None.
Powered wheelchair considerations	• None.

5.29 Gets over 15cm pot-hole	
Versions applicable	• WST-M/WCU ✔ WST-M/CG ✔ • WST-P/WCU ✔ WST-P/CG ✔
Description	• The subject gets the wheelchair over a pot-hole that is 15cm across (in the line of progression) and at least as wide as the wheelchair.
Rationale	• Such loss of surface support is a commonly encountered barrier. Gaps at elevator doors and sewer grates are similar challenges.
Equipment	• Smooth level surface 1.5m wide, with at least 1.5m before and after the pothole. • The pothole should be ~5cm deep, the full width of the runway and 15cm across (in the line of progression).
Starting positions	• Wheelchair: at least 0.5m in front of the pot-hole. • Spotter: Behind the wheelchair, holding onto the spotter strap with one hand and the other hand in front of the wheelchair user's shoulder. If using two spotters, one spotter behind the wheelchair, holding onto the spotter strap and a second spotter in front of and beside the wheelchair.
Instructions to subject	• "Get your wheelchair over the pot-hole (indicate it)."
Capacity criteria	• The skill has been completed when all components of the wheelchair are on the level surface beyond the pot-holes. • Any technique is permitted.
Safety criteria	• Criteria for awarding unsafe score: o General criteria. o Full rear tip when accelerating to pop casters from surface. o Full forward tip or fall from the wheelchair if the casters roll or drop into the pothole. • Comments only: o If the casters roll or drop into pothole. o Jarring due to sudden stopping. o Hyper-flexion of lower limb without injury. o Assistance needed to get out of the pot-hole.
Caregiver considerations	• The caregiver may request assistance from the wheelchair user during this skill, in the form of having the wheelchair user lean backwards or forwards at the caregiver's direction, to facilitate the different stages of the skill.
Powered wheelchair considerations	• None.

5.30 Gets over 2cm threshold	
Versions applicable	• WST-M/WCU ✔ WST-M/CG ✔ • WST-P/WCU ✔ WST-P/CG ✔
Description	• The subject propels the wheelchair over a 2cm-high threshold.
Rationale	• Wheelchair users often encounter low obstacles (e.g. door thresholds) or higher ones (e.g. sticks, uneven sidewalk sections) that they cannot get over by merely rolling over them.
Equipment	• 2cm high, 1.5m wide and 10 cm across (in the line of progression), rectangular in cross-section (i.e. a vertical front face without a bevel). • The threshold should be secured so that it can withstand horizontal forces.
Starting positions	• Wheelchair: facing the threshold with the casters at least 0.5m from it. • Spotter: Behind the wheelchair, holding onto the spotter strap with one hand and the other hand in front of the wheelchair user's shoulder. If using two spotters, one spotter behind the wheelchair, holding onto the spotter strap and a second spotter in front of and beside the wheelchair.
Instructions to subject	• "Get your wheelchair over the threshold."
Capacity criteria	• The threshold may be approached in the forward or backward direction. • The finish is when the all parts of the chair have passed beyond the threshold. • The wheelchair user is permitted to use his/her feet or stand to get over the threshold.
Safety criteria	• Criteria for awarding unsafe score: o General criteria. o Full rear tip when accelerating to pop casters from surface. o Full forward tip or fall from the wheelchair if the casters strike the threshold. • Comments only: o Jarring due to sudden stopping. o Hyper-flexion of lower limb without injury.
Caregiver considerations	• The caregiver may request assistance from the wheelchair user during this skill, in the form of having the wheelchair user lean backwards or forwards at the caregiver's direction, to facilitate the different stages of the skill.
Powered wheelchair	• None.

considerations	

5.31 Ascends 5cm level change	
Versions applicable	• WST-M/WCU ✔ WST-M/CG ✔ • WST-P/WCU ✔ WST-P/CG ✔
Description	• The subject gets the wheelchair up a 5cm level change.
Rationale	• Level changes (e.g. curbs, steps) are common obstacles in the natural and man-made environments.
Equipment	• The pathway on the lower level leading to and from the level change should be at least 1.5m wide and at least 3m long, for subjects who use the momentum method. The pathway on the upper level leading to and from the level change should be at least 1.5m wide and at least 1.5m long. • The level change should be 5cm high. • The nosing of the level change should be gently rounded and covered with a non-slip material (e.g. gritted paint). • If needed, bracing or weighting is used to prevent the level change from moving when struck by the wheelchair.
Starting positions	• Wheelchair: All wheels are on the level surface below the level change, facing the edge and at least 0.5m from it. If the subject uses the momentum method, the subject may reposition the wheelchair farther from the level change before starting. • Spotter: Behind the wheelchair, holding onto the spotter strap with one hand and the other hand in front of the wheelchair user's shoulder. The spotter should be alert to the possibility of a sideways tip if one rear wheel gets up onto the upper level before the other. If using two spotters, one spotter behind the wheelchair, holding onto the spotter strap and a second spotter in front of and beside the wheelchair.
Instructions to subject	• "Get the wheelchair up on the upper level."
Capacity criteria	• The level change is successfully ascended if all wheels are on the top surface, with the wheelchair user seated upright in the wheelchair. • The subject may remove the footrests and reposition the rear anti-tip devices but must be able to do so independently. • The wheelchair user may get out of the wheelchair to accomplish the task, if he/she can do so safely. • Curb-climbing aids may be used if the wheelchair is equipped with these devices, but the subject must be able to activate and inactivate the aids independently.
Safety criteria	• Criteria for awarding unsafe score:

	○ General criteria. ○ Full rear tip when accelerating to pop casters from surface. ○ Full forward tip or fall from the wheelchair if the casters strike the level change. ○ Full sideways tip if one wheel gets up onto the upper level before the other. • Comments only: ○ Casters strike front of level change, causing jarring. ○ Hyper-flexion of lower limb without injury. ○ Thumb laceration by brakes.
Caregiver considerations	• If a caregiver uses poor ergonomic technique (e.g. lifting rather than rolling the wheelchair up onto the upper level, or failing to get the wheelchair user to assist by leaning forward), this should be noted as a comment only. • The caregiver may request assistance from the wheelchair user during this skill, in the form of having the wheelchair user lean backwards or forwards at the caregiver's direction, to facilitate the different stages of the skill.
Powered wheelchair considerations	• None.

5.32 Descends 5cm level change	
Versions applicable	• WST-M/WCU ✔ WST-M/CG ✔ • WST-P/WCU ✔ WST-P/CG ✔
Description	• The subject gets the wheelchair down a 5cm level change.
Rationale	• As for "ascends 5cm level change" skill (#5.31).
Equipment	• As for "ascends 5cm level change" skill (#5.31) except, because many subjects can descend level changes from a higher level than they can ascend, some alternative means (e.g. an incline) of getting to the top is recommended. Alternatively, the WSP personnel can help get the wheelchair to the upper level.
Starting positions	• Wheelchair: All wheels are on the level surface above the level change, facing the edge, with the leading wheels at least 0.5m away from it. • Spotter: Behind the wheelchair, holding onto the spotter strap with one hand and, if the subject is using a forward approach, the other hand in front of the wheelchair user's shoulder. The spotter should be alert to the possibility of a sideways tip if one rear wheel drops off the upper level before the other. If using two spotters, one spotter behind the wheelchair, holding onto the spotter strap and a second spotter in front of and beside the wheelchair.
Instructions to subject	• "Get the wheelchair down to the lower level."
Capacity criteria	• The level change is successfully descended when all wheels are on the lower level, the wheelchair user is seated upright in the wheelchair and the wheelchair is free to roll away (i.e. not hung up on the footrests or rear anti-tip devices). • Any technique is permitted. • The wheelchair user may get out of the wheelchair to accomplish the task, if he/she can do so safely. • The subject may remove the footrests and reposition the rear anti-tip devices but must be able to do so independently.
Safety criteria	• Criteria for awarding unsafe score: o General criteria. o Full rear tip if performed backwards or in forward wheelie position. o Full forward tip or fall from the wheelchair if the skill is performed by rolling forward off the level change. o Full sideways tip if one wheel drops off the upper level before the other. • Comments only:

	○ Mild to moderate jarring due to uncontrolled drop of wheels to lower level.
Caregiver considerations	• The caregiver may request assistance from the wheelchair user during this skill, in the form of having the wheelchair user lean backwards or forwards at the caregiver's direction, to facilitate the different stages of the skill.
Powered wheelchair considerations	• None.

5.33 Ascends 15cm curb	
Versions applicable	• WST-M/WCU ✔ WST-M/CG ✔ • WST-P/WCU **X** WST-P/CG **X**
Description	• The subject ascends a 15cm curb in the wheelchair.
Rationale	• As for "ascends 5cm level change" skill (#5.31). • This skill is not generally applicable for powered wheelchairs because of the difficulty and danger involved.
Equipment	• As for "ascends 5cm level change" skill (#5.31) except 15cm high.
Starting positions	• As for "ascends 5cm level change" skill (#5.31).
Instructions to subject	• "Get the wheelchair up on the upper level."
Capacity criteria	• As for "ascends 5cm level change" skill (#5.31) except if the subject has failed the "ascends 5cm level change" skill, a failing grade should be awarded.
Safety criteria	• As for "ascends 5cm level change" skill (#5.31)
Caregiver considerations	• The caregiver may request assistance from the wheelchair user during this skill, in the form of having the wheelchair user lean backwards or forwards at the caregiver's direction, to facilitate the different stages of the skill. • If the caregiver fails to have the wheelchair user lean as far forward as possible while rolling the rear wheels forward up the curb or if the caregiver lifts rather than rolls the wheelchair to the upper level, this should be noted as a comment. • If a caregiver pulls the wheelchair up the curb backwards, which is usually ergonomically unsound, this should be noted as a comment.
Powered wheelchair considerations	• Not applicable for most powered wheelchairs, so not included in the WST.

5.34 Descends 15cm curb	
Versions applicable	• WST-M/WCU ✔ WST-M/CG ✔ • WST-P/WCU **X** WST-P/CG **X**
Description	• The subject gets the wheelchair down a 15cm curb.
Rationale	• As for "descends 5cm level change" skill (#5.32). • The appropriate technique for a high curb may differ from that used for a lesser level change. • This skill is not generally applicable for powered wheelchairs because of the difficulty and danger involved.
Equipment	• As for "ascends 15cm curb" skill (#5.33).
Starting positions	• Wheelchair: the leading wheels at least 0.5m from the curb edge. Because the subject should have described his/her approach before an attempt is permitted, the leading wheels may be the front or rear ones. • Spotter: For the backwards approach, behind the wheelchair, holding onto the spotter strap. For the forward-wheelie approach, behind the wheelchair, holding onto the spotter strap with one hand and the other hand in front of the wheelchair user's shoulder. If using two spotters, for the forward-wheelie approach, one spotter behind the wheelchair, holding onto the spotter strap and a second spotter in front of and beside the wheelchair.
Instructions to subject	• "Get the wheelchair down the curb."
Capacity criteria	• Success on the screening questions is strongly recommended before the subject is allowed to proceed to the objective testing of this skill. • As for "descends 5cm level change" skill (#5.32) except as below. • If the subject fails the "descends 5cm level change" skill, a failing grade should be awarded. • If the subject has successfully completed the 5cm-level-change descent skill, the tester should ask the subject how he/she plans to attempt the task of descending the15cm curb. If an unacceptable technique is described, the tester will explain that this is not a permitted method. If the tester considers the described method to be dangerous, a failing grade should be awarded. If a method is described that the tester has concerns about from the perspective of being able to spot the skill in a manner that is safe for both the subject and the WSP personnel, the tester may allow the subject to choose another method without penalty.
Safety criteria	• Criteria for awarding unsafe score:

	○ General criteria. ○ As for "descends 5cm level change" skill (#5.32). ○ If a subject attempts to go off the edge at an approach angle of more than 5 degrees, the tester should intervene and award a failing grade. ○ If a subject backs up to the curb edge and appears to be about to roll off without leaning forwards, the tester should intervene and award a failing score. • Comments only: ○ Mild to moderate jarring.
Caregiver considerations	• The caregiver may request assistance from the wheelchair user during this skill, in the form of having the wheelchair user lean backwards or forwards at the caregiver's direction, to facilitate the different stages of the skill. • If a caregiver attempts to bring the wheelchair off the curb backwards in the wheelie position, the tester should intervene and award a 'fail' score for capacity and an 'unsafe' score for safety. • If the caregiver fails to have the wheelchair user lean as far forward as possible while rolling the rear wheels backwards down the curb, this should be noted as a comment. • If a caregiver lowers the wheelchair, in the forward wheelie position, in a way that is ergonomically unsound, this should be noted as a comment.
Powered wheelchair considerations	• Not applicable for most powered wheelchairs, so not included in the WST.

5.35 Performs 30s stationary wheelie	
Versions applicable	• WST-M/WCU ✔ WST-M/CG ✔ • WST-P/WCU **X** WST-P/CG **X**
Description	• The subject achieves the wheelie position (balancing on the rear wheels), maintains it for 30 seconds and brings the casters back to the floor.
Rationale	• The stationary wheelie position can be used to avoid postural problems that can cause neck strain from looking up or to decrease the likelihood of pressure sores on the ischial tuberosities. The stationary wheelie is also a foundation skill for a number of functional skills (e.g. curb descent, steep incline descent) that can be best performed in the full wheelie position. • This skill is not applicable for powered wheelchairs because of the difficulty and danger involved.
Equipment	• As for “turns 180° in place” skill (#5.13).
Starting positions	• Wheelchair: in the center of the square. • Spotter: Behind the wheelchair, holding onto the spotter strap.
Instructions to subject	• “Get the wheelchair into the wheelie position and hold it there until I tell you to stop. Keep the rear wheels within the box (indicate it)." • After 30s, "Come down now.”
Capacity criteria	• The subject must achieve the wheelie position and hold this position in a controlled manner for 30s, while all wheels that are in contact with the floor (rear wheels +/- rear anti-tip-device wheels) remain within the square. • After 30s, a controlled return to the upright position should be made. The subject must wait for the instruction to bring the casters back to the floor before doing so. The casters must land inside the square. • Note: For the purposes of this and other full wheelie skills, wherever the term ‘wheelie’ is used, it includes the aided-wheelie position (casters off the floor, balanced on rear anti-tip devices) as an acceptable alternative. • It is permissible to use the feet to achieve the wheelie position but not to maintain it.
Safety criteria	• Criteria for awarding unsafe score: o General criteria. o Full rear tip if the subject overshoots the balance point too much on take-off or loses balance. • Comments only:

	o Jarring if the subject lands too vigorously.
Caregiver considerations	• None.
Powered wheelchair considerations	• Not applicable for powered wheelchairs.

5.36 Turns 180° in place in wheelie position	
Versions applicable	• WST-M/WCU ✔ WST-M/CG ✔ • WST-P/WCU **X** WST-P/CG **X**
Description	• In the wheelie position, the subject turns the chair 180° in place, both to the left and right.
Rationale	• As for "performs 30s stationary wheelie" skill (#5.35). • Wheelchair users often encounter situations in which they need to perform a wheelie to make a tight turn. The area needed on the support surface is less than that needed with all four wheels on the surface. • This skill is not applicable for powered wheelchairs because of the difficulty and danger involved.
Equipment	• As for "turns 180° in place" skill (#5.13).
Starting positions	• As for "performs 30s stationary wheelie" skill (#5.35).
Instructions to subject	• "Get the wheelchair into the wheelie position. Now, keeping the chair within this square (indicate it), turn the wheelchair around until it is facing the opposite direction. Now turn the chair in the other direction (indicate it) until it is back where you started."
Capacity criteria	• If the subject fails the "performs 30s stationary wheelie" skill, a failing grade should be awarded. • The subject is required to achieve the wheelie position and to turn 180° to the left and right while keeping all wheels that are in contact with the floor (rear wheels +/- rear anti-tip device wheels) within the 1.5m square. • If the subject has turned, but has not yet turned at least 160°, he/she may be prompted (e.g. "Keep going") without penalty. • The 180° turn may be accomplished in a single move (the "snap turn") or a series of smaller ones, as long as the wheelie position is maintained throughout. • The subject is permitted to return the casters to the floor between the turns to the left and right, but need not do so.
Safety criteria	• As for "performs 30s stationary wheelie" skill (#5.35).
Caregiver considerations	• None.
Powered wheelchair considerations	• Not applicable for powered wheelchairs.

5.37 Gets from ground into wheelchair	
Versions applicable	• WST-M/WCU ✔ WST-M/CG ✔ • WST-P/WCU ✔ WST-P/CG ✔
Description	• The wheelchair user gets from the ground into the wheelchair.
Rationale	• This skill is useful when recovering from a fall or from an occasion when the wheelchair user is on the ground for another reason.
Equipment	• Smooth level surface.
Starting positions	• Wheelchair user: seated or lying on the ground, out of the wheelchair. If the transfer to the ground cannot be achieved independently, the tester has the options of either assisting the wheelchair user out of the wheelchair or assessing the skill by interview alone. If the latter option is chosen (i.e. a blended WST/WST-Q), this should be noted in the Comment section. • Wheelchair: within reach, with the brakes unlocked. • Spotter: Near the wheelchair, in a position to prevent the wheelchair from tipping over or to prevent the subject from falling to the ground. If two spotters are used, one spotter should focus on the wheelchair user and the other spotter on preventing the wheelchair from sliding or rolling away. However, the second spotter should not touch the wheelchair until and unless it is necessary to intervene.
Instructions to subject	• "Get into the wheelchair and ready to roll away."
Capacity criteria	• Success on the screening questions is strongly recommended before the subject is allowed to proceed to the objective testing of this skill. The wheelchair user may be awarded a failing score if he/she does not describe a safe and effective method (see "Instructions to subject" above). • If the wheelchair user is unable to get onto the ground (with or without assistance), a 'fail' is awarded. • Any effective and safe technique is permitted. One method is to get into the wheelchair while it is tipped backwards onto the floor, and then restore the wheelchair to the upright position. Another method is to approach the upright wheelchair from the front. • No external aids (e.g. the transfer bench or stairs) may be used, unless they are carried by the subject or present in his/her natural environment and testing is performed there.
Safety criteria	• Criteria for awarding unsafe score: o General criteria. o Rear or sideways tip or fall if the subject loses control while

	getting back into the wheelchair. • Comments only: o Over-exertion injuries.
Caregiver considerations	• The caregiver may receive assistance from the wheelchair user in performing the skill. This is an exception to the general rule that the wheelchair user should not assist when the caregiver is being assessed alone.
Powered wheelchair considerations	• None.

5.38 Ascends stairs	
Versions applicable	• WST-M/WCU ✔ WST-M/CG ✔ • WST-P/WCU **X** WST-P/CG **X**
Description	• The wheelchair user and the wheelchair get from the bottom to the top of a set of at least 3 stairs.
Rationale	• Although alternative means of getting from a lower to a higher level are often present, the use of stairs is frequently the only option. Although 3 stairs are not many, they are representative of the skills needed for a full flight of steps. • This skill is not applicable for most powered wheelchairs because of the difficulty and danger involved.
Equipment	• There should be at least 3 stairs, with the following approximate dimensions – 18cm rise, 28cm run/tread and width of at least 1.2m. • Rails should be available on both sides, at a height 86-92cm above the steps. The rails should extend beyond the upper and lower stair boundaries by 30cm or more. • The set of stairs should end at the upper end on a level surface or platform that is at least $2m^2$. A 15cm-high lip around the open edges of the platform is recommended.
Starting positions	• Wheelchair: at the bottom of the stairs, usually with the back of the wheelchair facing the stairs and at least 0.5m from the bottom stair. • Spotter: If using a single spotter, he/she should be below and beside the wheelchair with one hand near a fixed part of the wheelchair and the other on a handrail. If using two spotters, one spotter behind and uphill to the wheelchair, holding onto the spotter strap. The second spotter in front of and beside the wheelchair, downhill. The spotter may hold the wheelchair loosely, as long as he/she does not interfere with the performance of the skill.
Instructions to subject	• "Get yourself and the wheelchair up the stairs and ready to roll away."
Capacity criteria	• Success on the screening questions is strongly recommended before being allowed to proceed to the objective testing of this skill. • Any effective and safe technique is permitted, as long as at least 3 stairs are completed. • The wheelchair user may get out of the wheelchair. • If a wheelchair user is the subject and is ascending while seated in the wheelchair, he/she must use at least one rail. • If a wheelchair user is the subject, then he/she is responsible for getting the wheelchair as well as himself/herself up the stairs.

	• No external aids (e.g. stair lift) may be used, unless they are carried by the subject or are present in his/her natural environment and testing is performed there.
Safety criteria	• Criteria for awarding unsafe score: o General criteria. o Runaway down the stairs, if the subject loses control. • Comments only: o Excessive jarring as the wheelchair moves from stair to stair. o Over-exertion injuries.
Caregiver considerations	• An example of an acceptable method of ascending stairs with caregivers is to use two or three caregivers, with one caregiver behind and one or two at the front of the chair. The chair is tilted back to a comfortable angle and the rear wheels are rolled backwards up the stairs one step at a time. • Caregivers may carry the wheelchair, loaded or unloaded. • The caregiver may receive assistance from the wheelchair user in performing the skill. This is an exception to the general rule that the wheelchair user should not assist when the caregiver is being assessed alone.
Powered wheelchair considerations	• Not applicable for most powered wheelchairs, so not included in the WST.

5.39 Descends stairs	
Versions applicable	• WST-M/WCU ✔ WST-M/CG ✔ • WST-P/WCU **X** WST-P/CG **X**
Description	• The wheelchair user and the wheelchair get from the top to the bottom of a set of stairs.
Rationale	• As for "ascends stairs" skill (#5.38).
Equipment	• As for "ascends stairs" skill (#5.38). • Because it is often possible to descend stairs that cannot be ascended, an alternative means (e.g. a ramp, lift or test personnel) should be available to allow the wheelchair to get to the top of the stairs.
Starting positions	• Wheelchair: at the top of the stairs, at least 0.5m from the top stair. • Spotter: Below the wheelchair, between the wheelchair and the top step. At least one of the spotter's hands will be near a fixed part of the wheelchair to resist tipping or runaway. The spotter may hold the wheelchair loosely, as long as he/she does not interfere with the performance of the skill. The other hand may be used to grasp a hand-rail.
Instructions to subject	• "Get yourself and the wheelchair down the stairs and ready to roll away."
Capacity criteria	• Success on the screening questions is strongly recommended before being allowed to proceed to the objective testing of this skill. • If a wheelchair user is the subject, then he/she is responsible for getting the wheelchair as well as himself/herself down the stairs. • External aids (e.g. stair lift) may only be used, if they are carried by the subject or are present in his/her natural environment and testing is done there.
Safety criteria	• Criteria for awarding unsafe score: o General criteria. o Runaway down the stairs, if the subject loses control. • Comments only: o Excessive jarring as the wheelchair moves from stair to stair. o Over-exertion injuries.
Caregiver considerations	• An example of an acceptable method of descending stairs with caregivers is to use two or three caregivers. The wheelchair is facing down the stairs. One caregiver is behind the wheelchair and one or two are at the front of the chair, holding fixed parts of the wheelchair. The chair is tilted back to a comfortable angle and the rear wheels are rolled down the stairs one step at a time.

Powered wheelchair considerations	• Not applicable for most powered wheelchairs, so not included in the WST.

6.0 Appendices

The next four appendices are the suggested scripts for administering the questionnaire version of the WST (the WST-Q), as follows:

6.1 WST-Q script for manual wheelchairs operated by their users
6.2 WST-Q script for manual wheelchairs operated by caregivers
6.3 WST-Q script for powered wheelchairs operated by their users
6.4 WST-Q script for powered wheelchairs operated by caregivers

Wheelchair Skills Test, Version 4.1, Questionnaire Version (WST-Q): Manual Wheelchairs Operated by Their Users

Name of wheelchair user: _____

Name of proxy (if any): _____

Date (MM/DD/YY): _____

Manner of administration:

- Tester administered: in-person _____ by phone _____

Notes:

- Testers should refer to the WST 4.1 Manual (www.wheelchairskillsprogram.ca/eng/testers.php) for details about the WST.
- The tester should have an understanding about the characteristics of the wheelchair prior to beginning the WST-Q. This will permit the tester to score "no part" for questions related to features (e.g. whether the wheelchair folds) that the wheelchair does not have.
- If a test subject is unclear about the meaning of the question, the tester may repeat the question or re-phrase it.

Introductory Remarks by Tester to Test Subject

- For about the next 10 minutes, I will be asking you questions about a number of different skills that you might perform in your wheelchair.
- If you don't understand the question, please feel free to ask for clarification.
- If you have more than one wheelchair, please remember that it is your manual wheelchair that I will be asking about.
- For each skill, I will ask you if you can do the skill. If the answer is 'yes', I will also ask you if you have actually used this skill in the past month.
- It is not expected that you will be able to perform every skill or that you will use the skills.
- When I ask you these questions about each skill, what I want to understand is if you can do the skill *successfully*, *consistently*, *without any help* and *safely*.
- Regarding safety, we consider a skill to be unsafe if you injured yourself while performing it or if you required someone else to prevent you from being injured.
- In addition to answering 'yes' or 'no' to each question, please feel free to explain or comment on your answer.
- Do you have any general questions now, before we begin?
- Okay, let's begin.

Specific Skills

Score with a ☑ or a *Y* for 'yes', an *X* or an *N* for 'no', *NP* for 'no part' or *TE* for 'testing error'.

Questions (C = Capacity, P = Performance)	**Capacity**	**Performance**	**Comment**
1C. Can you make your manual wheelchair go straight **forward** on a smooth level surface for a distance of about 10 times the length of your wheelchair?			
1P. Have you done this in the past month?			
2C. Can you move your manual wheelchair this far in the time it would take to **count to 30**?			
2P. Have you done this in the past month?			
3C. Can you make your manual wheelchair go straight **backward** for a distance of about 5 times the length of your wheelchair?			
3P. Have you done this in the past month?			
4C. When moving your manual wheelchair **forward**, can you make it **turn around a corner**? Can you do this to the left and right?			
4P. Have you done this in the past month?			
5C. When moving your manual wheelchair **backward**, can you make it turn around a corner? Can you do this to the left and right?			
5P. Have you done this in the past month?			
6C. Imagine that you find yourself in a tight space, with only about an arm's length of extra space around your manual wheelchair in all directions. When that is the case, can you **turn your wheelchair around** so that it is facing in the opposite direction? Can you do this to the left and right?			
6P. Have you done this in the past month?			

Questions	C	P	Comment
7C. Imagine that you are sitting in your manual wheelchair with something (such as a window) about an arm's length away on one side. If you have limited space in front of and behind you (about an arm's length), can you move your wheelchair **sideways** next to that object? Can you then move the wheelchair back to its original position?			
7P. Have you done this in the past month?			
8C. Imagine a **door** with a latch handle that swings open away from you without any resistance. Can you open such a door, use your manual wheelchair to go through it and then close the door behind you? Can you do this if the door opens toward you?			
8P. Have you done this in the past month?			
9C. Imagine that you are sitting in your manual wheelchair and you need to **reach up** overhead for something (such as an elevator button) on the wall ahead of you. Can you maneuver your wheelchair and do that?			
9P. Have you done this in the past month?			
10C. Imagine that you are sitting in your manual wheelchair and there is something (such as a paperback book) on the ground in front of your wheelchair that you want to **pick up**. Can you maneuver your wheelchair and do that?			
10P. Have you done this in the past month?			
11C. Imagine that you wish to relieve the weight from your **buttocks** for several seconds, for comfort or to prevent skin sores. Can you do it yourself?			
11P. Have you done this in the past month?			
12C. Can you **transfer** from your manual wheelchair to another level surface (such as a bench or a bed) of about the same height as your wheelchair? Can you then get back into your wheelchair?			
12P. Have you done this in the past month?			

Questions	C	P	Comment
13C. Imagine that you wish to make your manual wheelchair as small as possible, for instance to put it in a car. Can you **fold your wheelchair** or break it down into its parts without tools? Can you then restore the wheelchair to its original condition?			
13P. Have you done this in the past month?			
14C. Can you make your manual wheelchair go straight forward on a smooth level surface for a **distance** that is about 100 times the length of your wheelchair (for instance in a long hallway or across a parking lot)?			
14P. Have you done this in the past month?			
15C. While you are moving your manual wheelchair over this longer distance, imagine that someone is about to **collide** with you from one side. Can you avoid the collision? Can you avoid collisions from both the left and right?			
15P. Have you done this in the past month?			
16C. Imagine that you are at the bottom of a moderately steep **incline** that is about 3 times the length of your wheelchair and that there are no handrails. Can you move your manual wheelchair **up** the incline?			
16P. Have you done this in the past month?			
17C. Can you get your manual wheelchair **down** such an incline?			
17P. Have you done this in the past month?			
18C. If the incline was about twice as **steep**, can you get your manual wheelchair **up** it?			
18P. Have you done this in the past month?			
19C. Can you get your manual wheelchair **down** such a steeper incline?			
19P. Have you done this in the past month?			

Questions	C	P	Comment
20C. Imagine that you are sitting in your manual wheelchair facing across a moderately steep **side-slope** (such as on a hill or driveway) that is about 3 times the length of your wheelchair to get across. Can you get your wheelchair across the slope? Can you do this if you are coming back the other way?			
20P. Have you done this in the past month?			
21C. Imagine that you wish to move your manual wheelchair about 3 wheelchair lengths across a **soft surface** (such as grass or a thick carpet). Can you do it?			
21P. Have you done this in the past month?			
22C. Imagine that you are moving in your manual wheelchair and you come to a **pothole** or a gap that you cannot steer around. Can you get your wheelchair over such a pot-hole?			
22P. Have you done this in the past month?			
23C. Imagine that you are moving in your manual wheelchair and come to an **obstacle** (like a door threshold) that sticks up slightly above the surface. Can you get your wheelchair over such an obstacle?			
23P. Have you done this in the past month?			
24C. Imagine that you are using your manual wheelchair and you come to a small **level change** about 3 finger widths high. Can you get your wheelchair **up** onto the upper level?			
24P. Have you done this in the past month?			
25C. Can you get your manual wheelchair **down** from the upper to the lower level?			
25P. Have you done this in the past month?			
26C. Imagine that you are using your manual wheelchair and you come to a large **level change** (like a curb) about 8 finger widths high. Can you get your wheelchair **up** onto the upper level?			
26P. Have you done this in the past month?			

Questions	C	P	Comment
27C. Can you get your manual wheelchair **down** from the upper to the lower level?			
27P. Have you done this in the past month?			
28C. Can you balance your wheelchair on your rear wheels (that is, do a **wheelie**) for 30 seconds?			
28P. Have you done this in the past month?			
29C. While in the **wheelie** position, can you **turn** in a tight circle so you are facing the opposite direction? Can you do this to the left and right?			
29P. Have you done this in the past month?			
30C. Imagine that you are on the **ground**, perhaps after falling from your wheelchair. Can you get yourself up into your manual wheelchair yourself?			
30P. Have you done this in the past month?			
31C. Can you get yourself and your wheelchair **up a few stairs**?			
31P. Have you done this in the past month?			
32C. Can you get yourself and your wheelchair **down the stairs**?			
32P. Have you done this in the past month?			

Derived Values			
Number of 'yes' responses in Capacity (C) column (maximum of 32):			
Number of applicable skills (32 minus number of *NP* and *TE* responses in column):			
WST-Q Total Capacity Score:		%	
Number of 'yes' responses in Performance (P) column (maximum of 32):			
Number of applicable skills (32 minus number of *NP* and *TE* responses in column):			
WST-Q Total Performance Score:		%	

General Comments

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Tester: _____

Wheelchair Skills Test, Version 4.1, Questionnaire Version (WST-Q): Manual Wheelchairs Operated by Caregivers

Name of caregiver: _____

Name of wheelchair user: _____

Date (MM/DD/YY): _____

Manner of administration:
- Tester administered: in-person _____ by phone _____

Notes:
- Testers should refer to the WST 4.1 Manual (www.wheelchairskillsprogram.ca/eng/testers.php) for details about the WST.
- The tester should have an understanding about the characteristics of the wheelchair prior to beginning the WST-Q. This will permit the tester to score "no part" for questions related to features (e.g. whether the wheelchair folds) that the wheelchair does not have.
- If a test subject is unclear about the meaning of the question, the tester may repeat the question or re-phrase it.

Introductory Remarks by Tester to Test Subject
- For about the next 10 minutes, I will be asking you questions about a number of different skills that you might perform as a caregiver of a person who uses a manual wheelchair.
- If you don't understand the question, please feel free to ask for clarification.
- If you have experience with more than one wheelchair, please remember that it is your manual wheelchair that I will be asking about.
- For each skill, I will ask you if you can do the skill with the wheelchair user seated in the wheelchair. If the answer is 'yes', I will also ask you if you have actually used this skill in the past month.
- It is not expected that you will be able to perform every skill or that you will use the skills.
- When I ask you these questions about each skill, what I want to understand is if you can do the skill *successfully*, *consistently*, *without any help* and *safely*.
- Regarding safety, we consider a skill to be unsafe if you injured yourself or the wheelchair user while performing it or if you required someone else to prevent injury.
- In addition to answering 'yes' or 'no' to each question, please feel free to explain or comment on your answer.
- Do you have any general questions now, before we begin?
- Okay, let's begin.

Specific Skills

Score with a ☑ or a *Y* for 'yes', an *X* or an *N* for 'no', *NP* for 'no part' or *TE* for 'testing error'.

Questions (C = Capacity, P = Performance)	**Capacity**	**Performance**	**Comment**
1C. Can you **tilt** the seat backwards? Can you bring it forwards again?			
1P. Have you done this in the past month?			
2C. Can you **recline** the backrest while the seat remains in its original position? Can you get the backrest upright again?			
2P. Have you done this in the past month?			
3C. Can you make the manual wheelchair go straight **forward** on a smooth level surface for a distance of about 10 times the length of the wheelchair?			
3P. Have you done this in the past month?			
4C. Can you move the manual wheelchair this far in the time it would take to **count to 30**?			
4P. Have you done this in the past month?			
5C. Can you make the manual wheelchair go straight **backward** for a distance of about 5 times the length of the wheelchair?			
5P. Have you done this in the past month?			
6C. When moving the manual wheelchair **forward**, can you make it **turn around a corner**? Can you do this to the left and right?			
6P. Have you done this in the past month?			
7C. When moving the manual wheelchair **backward**, can you make it turn around a corner? Can you do this to the left and right?			
7P. Have you done this in the past month?			

Questions	C	P	Comment
8C. Imagine that you find the manual wheelchair in a tight space, with only about an arm's length of extra space around the wheelchair in all directions. When that is the case, can you **turn the wheelchair around** so that it is facing in the opposite direction? Can you do this to the left and right?			
8P. Have you done this in the past month?			
9C. Imagine that the manual wheelchair is sitting with something (such as a window) about an arm's length away on one side. If there is limited space in front of and behind the wheelchair (about an arm's length), can you move the wheelchair **sideways** next to that object? Can you then move the wheelchair back to its original position?			
9P. Have you done this in the past month?			
10C. Imagine a **door** with a latch handle that swings open away from you without any resistance. Can you open such a door, move the manual wheelchair through it and then close the door behind you? Can you do this if the door opens toward you?			
10P. Have you done this in the past month?			
11C. Can you help the wheelchair user to **transfer** from the manual wheelchair to another level surface (such as a bench or a bed) of about the same height as the wheelchair? Can you then help the wheelchair user get back into the wheelchair?			
11P. Have you done this in the past month?			
12C. Imagine that you wish to make the manual wheelchair as small as possible, for instance to put it in a car. Can you **fold the wheelchair** or break it down into its parts without tools? Can you then restore the wheelchair to its original condition?			
12P. Have you done this in the past month?			

Questions	C	P	Comment
13C. Can you make the manual wheelchair go straight forward on a smooth level surface for a **distance** that is about 100 times the length of your wheelchair (for instance in a long hallway or across a parking lot)?			
13P. Have you done this in the past month?			
14C. While you are moving the manual wheelchair over this longer distance, imagine that someone is about to **collide** with the wheelchair from one side. Can you avoid the collision? Can you avoid collisions from both the left and right?			
14P. Have you done this in the past month?			
15C. Imagine that you are at the bottom of a moderately steep **incline** that is about 3 times the length of your wheelchair and that there are no handrails. Can you move the manual wheelchair **up** the incline?			
15P. Have you done this in the past month?			
16C. Can you get the manual wheelchair **down** such an incline?			
16P. Have you done this in the past month?			
17C. If the incline was about twice as **steep**, can you get the manual wheelchair **up** it?			
17P. Have you done this in the past month?			
18C. Can you get the manual wheelchair **down** such a steeper incline?			
18P. Have you done this in the past month?			
19C. Imagine that the manual wheelchair is facing across a moderately steep **side-slope** (such as on a hill or driveway) that is about 3 times the length of the wheelchair to get across. Can you get the manual wheelchair across the slope? Can you do this if coming back the other way?			
19P. Have you done this in the past month?			

Questions	C	P	Comment
20C. Imagine that you wish to move the manual wheelchair about 3 wheelchair lengths across a **soft surface** (such as grass or a thick carpet). Can you do it?			
20P. Have you done this in the past month?			
21C. Imagine that you are moving the manual wheelchair and you come to a **pothole** or a gap that you cannot steer around. Can you get the wheelchair over such a pot-hole?			
21P. Have you done this in the past month?			
22C. Imagine that you are moving the manual wheelchair and come to an **obstacle** (like a door threshold) that sticks up slightly above the surface. Can you get your wheelchair over such an obstacle?			
22P. Have you done this in the past month?			
23C. Imagine that you are moving the manual wheelchair and you come to a small **level change** about 3 finger widths high. Can you get your wheelchair **up** onto the upper level?			
23P. Have you done this in the past month?			
24C. Can you get your manual wheelchair **down** from the upper to the lower level?			
24P. Have you done this in the past month?			
25C. Imagine that you are moving the manual wheelchair and you come to a large **level change** (like a curb) about 8 finger widths high. Can you get your wheelchair **up** onto the upper level?			
25P. Have you done this in the past month?			
26C. Can you get the manual wheelchair **down** from the upper to the lower level?			
26P. Have you done this in the past month?			
27C. Can you balance the occupied wheelchair on the rear wheels (that is, do a **wheelie**) for 30 seconds?			
27P. Have you done this in the past month?			

Questions	C	P	Comment
28C. While the occupied wheelchair is in the **wheelie** position, can you **turn** it in a tight circle so it is facing the opposite direction? Can you do this to the left and right?			
28P. Have you done this in the past month?			
29C. Imagine that the wheelchair user is on the **ground**, perhaps after falling from the manual wheelchair. Can you help get the wheelchair user up into the wheelchair?			
29P. Have you done this in the past month?			
30C. Can you get the occupied wheelchair **up a few stairs**?			
30P. Have you done this in the past month?			
31C. Can you get the occupied wheelchair **down the stairs**?			
31P. Have you done this in the past month?			

Derived Values			
Number of 'yes' responses in Capacity (C) column (maximum of 31):			
Number of applicable skills (31 minus number of *NP* and *TE* responses in column):			
WST-Q Total Capacity Score:		%	
Number of 'yes' responses in Performance (P) column (maximum of 31):			
Number of applicable skills (31 minus number of *NP* and *TE* responses in column):			
WST-Q Total Performance Score:		%	

General Comments

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Tester: _____

Wheelchair Skills Test, Version 4.1, Questionnaire Version (WST-Q): Powered Wheelchairs Operated by Their Users

Name of wheelchair user: _____

Name of proxy (if any): _____

Date (MM/DD/YY): _____

Manner of administration:
- Tester administered: in-person _____ by phone _____

Notes:
- Testers should refer to the WST 4.1 Manual (www.wheelchairskillsprogram.ca/eng/testers.php) for details about the WST.
- The tester should have an understanding about the characteristics of the wheelchair user and wheelchair prior to beginning the WST-Q. This will permit the tester to score "no part" for questions related to features (e.g. tilt) that the wheelchair does not have.
- If a test subject is unclear about the meaning of the question, the tester may repeat the question or re-phrase it.

Introductory Remarks by Tester to Test Subject
- For about the next 10 minutes, I will be asking you questions about a number of different skills that you might perform in your wheelchair.
- If you don't understand the question, please feel free to ask for clarification.
- If you have more than one wheelchair, please remember that it is your powered wheelchair that I will be asking about.
- For each skill, I will ask you if you can do the skill. If the answer is 'yes', I will also ask you if you have actually used this skill in the past month.
- It is not expected that you will be able to perform every skill or that you will use the skills.
- When I ask you these questions about each skill, what I want to understand is if you can do the skill *successfully*, *consistently*, *without any help* and *safely*.
- Regarding safety, we consider a skill to be unsafe if you injured yourself while performing it or if you required someone else to prevent you from being injured.
- In addition to answering 'yes' or 'no' to each question, please feel free to explain or comment on your answer.
- Do you have any general questions now, before we begin?
- Okay, let's begin.

Specific Skills

Score with a ☑ or a *Y* for 'yes', an *X* or an *N* for 'no', *NP* for 'no part' or *TE* for 'testing error'.

Questions (C = Capacity, P = Performance)	**Capacity**	**Performance**	**Comment**
1C. Can you move the **joystick** unit out of the way yourself? Can you put it back again?			
1P. Have you done this in the past month?			
2C. Can you turn the wheelchair's **power** on and off?			
2P. Have you done this in the past month?			
3C. Can you change from one controller **setting and speed** to another?			
3P. Have you done this in the past month?			
4C. Can you **tilt** the seat backwards yourself? Can you bring it forwards again?			
4P. Have you done this in the past month?			
5C. Can you **recline** the backrest while the seat remains in its original position yourself? Can you get the backrest upright again?			
5P. Have you done this in the past month?			
6C. Can you adjust the **motors** of your chair yourself, so that someone could push your wheelchair when the power is turned off? Can you restore the wheelchair to its original state?			
6P. Have you done this in the past month?			
7C. Can you charge the wheelchair **batteries** yourself?			
7P. Have you done this in the past month?			
8C. Can you make your powered wheelchair go straight **forward** on a smooth level surface for a distance of about 10 times the length of your wheelchair?			
8P. Have you done this in the past month?			

Questions	C	P	Comment
9C. Can you move your powered wheelchair this far in the time it would take to **count to 30**?			
9P. Have you done this in the past month?			
10C. Can you make your powered wheelchair go straight **backward** for a distance of about 5 times the length of your wheelchair?			
10P. Have you done this in the past month?			
11C. When moving your powered wheelchair **forward**, can you make it **turn around a corner**? Can you do this to the left and right?			
11P. Have you done this in the past month?			
12C. When moving your powered wheelchair **backward**, can you make it turn around a corner? Can you do this to the left and right?			
12P. Have you done this in the past month?			
13C. Imagine that you find yourself in a tight space, with only about an arm's length of extra space around your powered wheelchair in all directions. When that is the case, can you **turn your wheelchair around** so that it is facing in the opposite direction? Can you do this to the left and right?			
13P. Have you done this in the past month?			
14C. Imagine that you are sitting in your powered wheelchair with something (such as a window) about an arm's length away on one side. If you have limited space in front of and behind you (about an arm's length), can you move your powered wheelchair **sideways** next to that object? Can you then move the wheelchair back to its original position?			
14P. Have you done this in the past month?			

Questions	C	P	Comment
15C. Imagine a **door** with a latch handle that swings open away from you without any resistance. Can you open such a door, use your powered wheelchair to go through it and then close the door behind you? Can you do this if the door opens toward you?			
15P. Have you done this in the past month?			
16C. Imagine that you are sitting in your powered wheelchair and you need to **reach up** overhead for something (such as an elevator button) on the wall ahead of you. Can you maneuver your powered wheelchair and do that?			
16P. Have you done this in the past month?			
17C. Imagine that you are sitting in your powered wheelchair and there is something (such as a paperback book) on the ground in front of your wheelchair that you want to **pick up**. Can you maneuver your powered wheelchair and do that?			
17P. Have you done this in the past month?			
18C. Imagine that you wish to relieve the weight from your **buttocks** for several seconds, for comfort or to prevent skin sores. Can you do it yourself?			
18P. Have you done this in the past month?			
19C. Can you **transfer** from your powered wheelchair to another level surface (such as a bench or a bed) of about the same height as your wheelchair? Can you then get back into your wheelchair?			
19P. Have you done this in the past month?			
20C. Can you make your powered wheelchair go straight forward on a smooth level surface for a **distance** that is about 100 times the length of your wheelchair (for instance in a long hallway or across a parking lot)?			
20P. Have you done this in the past month?			

Questions	C	P	Comment
21C. While you are moving your powered wheelchair over this longer distance, imagine that someone is about to **collide** with you from one side. Can you avoid the collision? Can you avoid collisions from both the left and right?			
21P. Have you done this in the past month?			
22C. Imagine that you are at the bottom of a moderately steep **incline** that is about 3 times the length of your wheelchair. Can you move your powered wheelchair **up** the incline?			
22P. Have you done this in the past month?			
23C. Can you get your powered wheelchair **down** such an incline?			
23P. Have you done this in the past month?			
24C. If the incline was about twice as **steep**, can you get your powered wheelchair **up** it?			
24P. Have you done this in the past month?			
25C. Can you get your powered wheelchair **down** such a steeper incline?			
25P. Have you done this in the past month?			
26C. Imagine that you are sitting in your powered wheelchair facing across a moderately steep **side-slope** (such as on a hill or driveway) that is about 3 times the length of your wheelchair to get across. Can you get your powered wheelchair across the slope? Can you do this if you are coming back the other way?			
26P. Have you done this in the past month?			
27C. Imagine that you wish to move your powered wheelchair about 3 wheelchair lengths across a **soft surface** (such as grass or a thick carpet). Can you do it?			
27P. Have you done this in the past month?			

Questions	C	P	Comment
28C. Imagine that you are moving in your powered wheelchair and you come to a **pothole** or a gap that you cannot steer around. Can you get your wheelchair over such a pot-hole?			
28P. Have you done this in the past month?			
29C. Imagine that you are moving in your powered wheelchair and come to an **obstacle** (like a door threshold) that sticks up slightly above the surface. Can you get your wheelchair over such an obstacle?			
29P. Have you done this in the past month?			
30C. Imagine that you are using your powered wheelchair and you come to a small **level change** about 3 finger widths high. Can you get your wheelchair **up** onto the upper level?			
30P. Have you done this in the past month?			
31C. Can you get your powered wheelchair **down** from the upper to the lower level?			
31P. Have you done this in the past month?			
32C. Imagine that you are on the **ground**, perhaps after falling from your wheelchair. Can you get yourself up into your powered wheelchair yourself?			
32P. Have you done this in the past month?			

Derived Values			
Number of 'yes' responses in Capacity (C) column (maximum of 32):			
Number of applicable skills (32 minus number of *NP* and *TE* responses in column):			
WST-Q Total Capacity Score:		%	
Number of 'yes' responses in Performance (P) column (maximum of 32):			
Number of applicable skills (32 minus number of *NP* and *TE* responses in column):			
WST-Q Total Performance Score:		%	

General Comments

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Tester: _____

Wheelchair Skills Test, Version 4.1, Questionnaire Version (WST-Q): Powered Wheelchairs Operated by Caregivers

Name of caregiver: _____

Name of wheelchair user: _____

Date (MM/DD/YY): _____

Manner of administration:

- Tester administered: in-person _____ by phone _____

Notes:

- Testers should refer to the WST 4.1 Manual (www.wheelchairskillsprogram.ca/eng/testers.php) for details about the WST.
- The tester should have an understanding about the characteristics of the wheelchair prior to beginning the WST-Q. This will permit the tester to score "no part" for questions related to features (e.g. tilt) that the wheelchair does not have.
- If a test subject is unclear about the meaning of the question, the tester may repeat the question or re-phrase it.

Introductory Remarks by Tester to Test Subject

- For about the next 10 minutes, I will be asking you questions about a number of different skills that you might perform as a caregiver of a person who uses a powered wheelchair.
- If you don't understand the question, please feel free to ask for clarification.
- If you have experience with more than one wheelchair, please remember that it is the powered wheelchair that I will be asking about.
- For each skill, I will ask you if you can do the skill with the wheelchair user seated in the wheelchair. If the answer is 'yes', I will also ask you if you have actually used this skill in the past month.
- It is not expected that you will be able to perform every skill or that you will use the skills.
- When I ask you these questions about each skill, what I want to understand is if you can do the skill *successfully*, *consistently*, *without any help* and *safely*.
- Regarding safety, we consider a skill to be unsafe if you injured yourself or the wheelchair user while performing it or if you required someone else to prevent injury.
- In addition to answering 'yes' or 'no' to each question, please feel free to explain or comment on your answer.
- Do you have any general questions now, before we begin?
- Okay, let's begin.

Specific Skills

Score with a ☑ or a *Y* for 'yes', an *X* or an *N* for 'no', *NP* for 'no part' or *TE* for 'testing error'.

Questions (C = Capacity, P = Performance)	**Capacity**	**Performance**	**Comment**
1C. Can you move the **joystick** unit out of the way? Can you put it back again?			
1P. Have you done this in the past month?			
2C. Can you turn the wheelchair's **power** on and off?			
2P. Have you done this in the past month?			
3C. Can you change from one controller **setting and speed** to another?			
3P. Have you done this in the past month?			
4C. Can you **tilt** the seat backwards? Can you bring it forwards again?			
4P. Have you done this in the past month?			
5C. Can you **recline** the backrest while the seat remains in its original position? Can you get the backrest upright again?			
5P. Have you done this in the past month?			
6C. Can you adjust the **motors** of your chair, so that you could push the wheelchair when the power is turned off? Can you restore the wheelchair to its original state?			
6P. Have you done this in the past month?			
7C. Can you charge the wheelchair **batteries**?			
7P. Have you done this in the past month?			
8C. Can you make the powered wheelchair go straight **forward** on a smooth level surface for a distance of about 10 times the length of the wheelchair?			
8P. Have you done this in the past month?			
9C. Can you move the powered wheelchair this far in the time it would take to **count to 30**?			
9P. Have you done this in the past month?			

Questions	C	P	Comment
10C. Can you make the powered wheelchair go straight **backward** for a distance of about 5 times the length of your wheelchair?			
10P. Have you done this in the past month?			
11C. When moving the powered wheelchair **forward**, can you make it **turn around a corner**? Can you do this to the left and right?			
11P. Have you done this in the past month?			
12C. When moving the powered wheelchair **backward**, can you make it turn around a corner? Can you do this to the left and right?			
12P. Have you done this in the past month?			
13C. Imagine that you find the powered wheelchair in a tight space, with only about an arm's length of extra space around the wheelchair in all directions. When that is the case, can you **turn the wheelchair around** so that it is facing in the opposite direction? Can you do this to the left and right?			
13P. Have you done this in the past month?			
14C. Imagine that the powered wheelchair is sitting with something (such as a window) about an arm's length away on one side. If there is limited space in front of and behind the wheelchair (about an arm's length), can you move the wheelchair **sideways** next to that object? Can you then move the wheelchair back to its original position?			
14P. Have you done this in the past month?			
15C. Imagine a **door** with a latch handle that swings open away from you without any resistance. Can you open such a door, get the powered wheelchair through it and then close the door behind you? Can you do this if the door opens toward you?			
15P. Have you done this in the past month?			

Questions	C	P	Comment
16C. Can you help the wheelchair user to **transfer** from the powered wheelchair to another level surface (such as a bench or a bed) of about the same height as the wheelchair? Can you then help the wheelchair user get back into the wheelchair?			
16P. Have you done this in the past month?			
17C. Can you make the powered wheelchair go straight forward on a smooth level surface for a **distance** that is about 100 times the length of the wheelchair (for instance in a long hallway or across a parking lot)?			
17P. Have you done this in the past month?			
18C. While you are moving the powered wheelchair over this longer distance, imagine that someone is about to **collide** with the wheelchair from one side. Can you avoid the collision? Can you avoid collisions from both the left and right?			
18P. Have you done this in the past month?			
19C. Imagine that you are at the bottom of a moderately steep **incline** that is about 3 times the length of the wheelchair. Can you move your powered wheelchair **up** the incline?			
19P. Have you done this in the past month?			
20C. Can you get the powered wheelchair **down** such an incline?			
20P. Have you done this in the past month?			
21C. If the incline was about twice as **steep**, can you get the powered wheelchair **up** it?			
21P. Have you done this in the past month?			
22C. Can you get the powered wheelchair **down** such a steeper incline?			
22P. Have you done this in the past month?			

Questions	C	P	Comment
23C. Imagine that the powered wheelchair is facing across a moderately steep **side-slope** (such as on a hill or driveway) that is about 3 times the length of the wheelchair to get across. Can you get the powered wheelchair across the slope? Can you do this if coming back the other way?			
23P. Have you done this in the past month?			
24C. Imagine that you wish to move the powered wheelchair about 3 wheelchair lengths across a **soft surface** (such as grass or a thick carpet). Can you do it?			
24P. Have you done this in the past month?			
25C. Imagine that you are moving the powered wheelchair and you come to a **pothole** or a gap that you cannot steer around. Can you get the wheelchair over such a pot-hole?			
25P. Have you done this in the past month?			
26C. Imagine that you are moving the powered wheelchair and come to an **obstacle** (like a door threshold) that sticks up slightly above the surface. Can you get the wheelchair over such an obstacle?			
26P. Have you done this in the past month?			
27C. Imagine that you are moving the powered wheelchair and you come to a small **level change** about 3 finger widths high. Can you get the wheelchair **up** onto the upper level?			
27P. Have you done this in the past month?			
28C. Can you get the powered wheelchair **down** from the upper to the lower level?			
28P. Have you done this in the past month?			
29C. Imagine that the wheelchair user is on the **ground**, perhaps after falling from the powered wheelchair. Can you help get the wheelchair user up into the wheelchair?			
29P. Have you done this in the past month?			

Derived Values			
Number of 'yes' responses in Capacity (C) column (maximum of 29):			
Number of applicable skills (29 minus number of *NP* and *TE* responses in column):			
WST-Q Total Capacity Score:		%	
Number of 'yes' responses in Performance (P) column (maximum of 29):			
Number of applicable skills (29 minus number of *NP* and *TE* responses in column):			
WST-Q Total Performance Score:		%	

General Comments

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Tester: _____