**Sensitivity Analysis of Baseline and Follow-up WST-Q and Knowledge Scores using Complete Data Only, Last Observation Carried Forward, and Multiple Imputation**

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| **Data Analyzed** | **Baseline** **Mean (SD)** | **Follow-up** **Mean (SD)** | **Paired Comparison** **p-value** |
| **Complete data (n=41)** |
|  WST-Q Capacity  | 16.9 (15.5) | 72.7 (22.0) | <0.001 |
|  WST-Q Confidence | 47.7 (18.8) | 78.81 (14.5) | <0.001 |
|  Knowledge | 67.0 (5.4) | 69.2 (13.4) | 0.012 |
| **Last Observation Carried Forward (n=50)** |
|  WST-Q Capacity  | 15.5 (14.8)  | 61.3 (31.8) | <0.001 |
|  WST-Q Confidence  | 45.9 (18.1) | 71.3 (21.2) | <0.001 |
|  Knowledge | 65.3 (10.8) | 67.0 (15.7) | 0.012 |
| **Data Analyzed** | **Baseline** **Pooled Mean** | **Follow-up****Pooled Mean** | **Paired Comparison** **p-value** |
| **Multiple Imputation (n=50)** |
|  WST-Q Capacity  | 15.6 | 73.0 | <0.001 |
|  WST-Q Confidence  | 46.0 | 78.0 | <0.001 |
|  Knowledge | 65.3 | 68.7 | 0.008 |

**Additional Participant Feedback**

Some participants felt the training would benefit from defined frequency and duration as well as how many times skills should be attempted. There were also comments about the introductory materials being very text-heavy with a preference indicated for the information to be delivered in a video format. For videos on specific skills, some requested more step-by-step instructions on how to complete the skill. Some participants found navigating the [removed for blinding] platform difficult to navigate for file sharing.

Participants felt the intervention was most useful for training future patients in how to complete wheelchair skills and gaining perspective on the patient experience of skill acquisition. The majority reported that understanding how to complete the skills themselves would assist them with being able to better teach and demonstrate skills. Some participants also commented on the utility of improved spotting skills.

Participants requested a schedule or timeline to guide the training intervention and additional videos as aspects to add to the training. Participants reported that remote trainer feedback and trial-and-error were helpful in skill acquisition. Others felt that limited access to equipment and obstacles was a barrier.

**Trainer Feedback**

Trends were noted in the content of the trainer’s asynchronous feedback both for spotters and for learners. Some of the most common problems for spotters, aside from the absence of a spotter in some video recordings, included deficiencies with gripping the wrist strap (wrist strap around the spotter’s wrist) and the strap being too long.

For learner issues related to transient caster popping (a necessary component of the “gets over gap”, “gets over threshold” and “ascends low curb” and “ascends high curb” skills), a number of learners did not use a forward trunk lean to get the rear wheels over the obstacle, others popped their casters too early or too high. There was a common reference to “caster slap” for curb ascent (when the rear wheels strike the curb before the casters have landed on the upper level, causing the momentum to be expended by “slapping” the casters down on the upper level rather than causing the rear wheels to climb the curb). For the “ascends high curb skill”, consistent comments were provided about the necessity of using the momentum method rather than the stationary approach.

For the “stationary wheelie”, cues were proved to keep the hands moving in small gentle motions (“proactive balance strategy”) and to practice on a soft surface, like a gym mat. For the “turns in place in wheelie position” skill, many needed to control their movements more, and land more deliberately. Some of the common feedback suggestions for the “descends incline in wheelie position” skill included keeping one’s weight back and getting into the wheelie position while facing sideways on the incline and then turning to face down the incline. For the “descends high curb in wheelie position” skill, suggestions were made to keep the chair perpendicular to the curb and to reduce jarring by pulling back on the hand rims during the descent. The trainer also noted trends with pairs of participants performing skills similarly or making the same mistakes in training sessions.

Challenges perceived by the remote trainer included the delays in timing and content of bolus feedback, problems due to video orientation or perspective and the limited interaction with participants. Unlike in-person training, with remote asynchronous feedback the trainer was limited to one opportunity per training session to provide feedback. As such, feedback was provided as a “bolus” highlighting several areas for improvement and prescriptive recommendations to improve skill acquisition. Some participants uploaded long videos that contained more than one skill, making the video more challenging to review. Some of the obstacles used by learners (e.g. threshold, high curb and steep incline) were not of Wheelchair Skills Test dimensions making scoring challenging. Safety was an additional concern as spotter issues were noted during training sessions. Benefits of the remote asynchronous training format for the trainer included no need for travel for on-site training, the ability to review video more than once (often 3 or more times), the ability to review videos in slow motion, and the ability to refer back to the videos as a training tool.

Other studies have noted that there are many different types of errors that learners can make when learning wheelchair skills.26 The recurring themes are outlined in the Wheelchair Skills Program Manual that participants reviewed, however they could be further emphasized in complementary video training materials or prepared as “stock” feedback for future trainings to save time for the remote trainer in providing feedback.