Development and preliminary assessment of the measurement properties of the Seating Identification Tool (SIT)
William C Miller, Francine Miller, Karen Trenholm, Desiree Grant and Kristen Goodman
Clin Rehabil 2004; 18; 317
DOI: 10.1191/0269215504cr729oa

The online version of this article can be found at: http://cre.sagepub.com/cgi/content/abstract/18/3/317
Development and preliminary assessment of the measurement properties of the Seating Identification Tool (SIT)\(^1\)

**William C Miller** School of Rehabilitation Sciences, University of British Columbia and Centre for Clinical Epidemiology and Evaluation, Vancouver Coastal Health Authority, **Francine Miller** Access Community Therapists, Vancouver, British Columbia, **Karen Trenholm** St. Joseph’s Health Care, Parkwood Hospital Wheelchair and Seating Program, London, **Desiree Grant** Community Advantage Rehabilitation, Toronto and **Kristen Goodman** St. Joseph’s Health Care, Parkwood Hospital Wheelchair and Seating Program, London, Ontario, Canada

Received 12th February 2003; returned for revisions 23rd April 2003; revised manuscript accepted 1st June 2003.

**Objective**: To present and discuss the development and measurement properties of the Seating Identification Tool (SIT), a screening tool designed to identify the need for formal seating and wheelchair intervention among institutionalized elderly. Specifically, investigation of the inter-rater and test–retest reliability, sensitivity, specificity, the positive and negative predictive values of the SIT was conducted.

**Design**: A two-week retest design.

**Setting**: A long-term care facility in London, Ontario, Canada.

**Subjects**: Forty-two randomly selected residents with an average age of 83 years who had a disability and required the use of a wheelchair as their main mode of mobility.

**Intervention**: Two health care assistants from a long-term facility collected data using the SIT. One rater assessed all subjects two weeks later to evaluate test–retest reliability. Diagnostic properties (validity) were determined by having all subjects assessed by a seating therapist.

**Main measurement**: The SIT and formal evaluation by a therapist experienced in seating.

**Results**: The ICC for both test–retest and inter-rater reliability was 0.83. A cut-off score of 2 maximized the sensitivity (100%) and specificity (64% and 57% for raters 1 and 2 respectively) and the area under the receiver operating characteristics curve (0.855 and 0.862 for raters 1 and 2). The positive and negative predictive values ranged from 82 to 100%.

**Conclusion**: The SIT is a quick, easy to use, reliable and valid screening tool that can be used to facilitate clinical referral for formal intervention. Other potential uses include population-based surveys to estimate the need for including seating intervention in strategic planning for the institutionalized elderly.

\(^1\) The results of this study were presented at the International Seating Symposium in Orlando, Florida, February 2001.

Address for correspondence: William C Miller, Centre for Clinical Epidemiology and Evaluation, VGH Research Pavilion, Room 715, 828 West 10th Ave, Vancouver, British Columbia, Canada, VSZ 1L8. e-mail: bcmiller@telus.net
Introduction

Approximately 152,000 Canadian adults use wheelchairs as their main mode of mobility, the majority of whom are older adults living in nursing homes or long-term care (LTC) facilities. Because these individuals typically sit in their wheelchairs most of the day, a wheelchair that does not ‘fit’ may be problematic. Many authors advocate that a good match between a person and their wheelchair/seating system will improve mobility, function and comfort while reducing the need for restraint, repositioning and potentially decrease the incidence of decubiti ulcers.

Identifying the need for intervention, defined as education, provision of equipment, or both, is a good first step in ensuring appropriate equipment is provided. Clinical experience suggests that individuals in LTC facilities are often provided a wheelchair without formal assessment, resulting in a less than desirable match. Specialized knowledge, commonly within the domain of occupational and physical therapy, applied during a formal assessment is required to ensure proper seating and wheelchair prescription. However, in general, health care providers in LTC facilities make decisions regarding the need for wheelchair and seating despite limited training in this area. Unfortunately, there is no single protocol to guide decision making for care providers who lack knowledge about wheelchairs and seating. Limited availability of trained equipment prescribers, limited funding for equipment and limited availability of safe and appropriate equipment in LTC facilities compounds the situation. Finally, the cost of a full assessment can be prohibitive. Consequently individuals can be given a wheelchair system that is inappropriate and may actually contribute to problems.

A screening tool that enables nonexperts to identify individuals who may benefit from intervention presents one potential solution. Screening tools are used to determine if individuals are at risk for acquiring a specific condition and/or to justify more formal intervention.

A review of the literature (1980–2000) revealed limited and dated work in this area. Three papers made reference to measuring the continuing care population for seating and wheelchair related problems. Two of these studies used tools/approaches for which no data was presented to evaluate the utility or quality of their measurements. The other study relied on full evaluation by an experienced therapist, the usual criterion for determining need, which is time consuming and often impractical. Therefore we created the Seating Identification Tool (SIT). The objective was to develop a quick, easy to use tool that would be sensitive for clinical and research purposes. This paper describes the development of the SIT and the results of a measurement study.

Methods

Development of the SIT

A modified form of the Delphi Technique was used to develop the SIT. The Parkwood Hospital Seating Program team, consisting of an occupational and physical therapist, generated a list of 25 items considered important indicators of the need for wheelchair/seating intervention. The list was derived from clinical experience and review of published studies from CINAHL and MEDLINE databases. These indicators were then circulated to 13 health professionals from nursing (n = 2) and occupational (n = 6) and physical therapy (n = 5) who worked in the London region and had experience (range 5–13 years) working with people who use wheelchairs, to ensure that all possible indicators were included. Only items identified by two or more of the panel members were included in the final list. The list was then collated and operationalized into questions. The reformatted items were circulated to the 13 health professionals, again to solicit feedback regarding the wording of the questions and identification of items each believed were critical to include. The early version of the SIT included 16 items.

Initial assessment of test–retest and inter-rater reliability and the diagnostic properties of the SIT was completed using a consecutive sample of 40 individuals from two LTC facilities. Raters for the first study included a nurse and an occupational therapist; neither had previously worked with or knew the subjects prior to the study. Validity was assessed by comparing SIT scores to the assessment by an occupational therapist who had eight years’ experience prescribing wheelchair systems.

Test–retest and inter-rater reliability of the initial SIT was calculated using intraclass
correlation coefficients (ICC) of 0.86 and 0.76 respectively while sensitivity was 75.6% and specificity was 12%. Although the original SIT was reasonably good at identifying individuals who required intervention, it had limited ability identifying individuals who did not. This meant the tool was only marginally better than referring everyone for assessment.

The present version of the SIT (Appendix) was reduced to 11 items. One item was dropped as neither rater in the first study selected it and four other items were eliminated as they were found to be statistically \((p < 0.05)\) dependent using chi-square test of independence. Based on rater feedback, a four-week timeframe was added to reduce uncertainty as to whether each item should be scored relative to the past, present or both and two items were reoperationalized to facilitate subject scoring.

The present version assesses five areas: pressure, discomfort behaviours, mobility, positioning and stability. SIT data are obtained using chart review and/or self-report. Verification using both methods is encouraged. Responses are recorded as ‘yes’ or ‘no’. All yes responses are scored as 1 except for items 1, 2, 4 and 10, which are weighted as 2 based on the judgement of the authors, who believe that these are crucial safety factors with regard to wheelchair and seating intervention.\(^{24}\) Responses are summed to provide a total score ranging from 0 to 15 with higher scores indicating greater need for intervention.

**Design**

To examine the measurement properties of the 11-item SIT a prospective two-week follow-up study with a different sample was conducted.

**Participants**

A simple random sample of 43 subjects was selected from a list of all wheelchair users at a large, LTC facility in London, Ontario, Canada. Consenting subjects who were \(\geq 60\) years of age, using a wheelchair as their primary seating or mobility device \((\geq 4\) hours a day) were included. The final sample size was derived based on testing the hypothesis that the reliability coefficient is minimally acceptable \((\text{rho} > 0.6)\) when alpha is 0.05 and beta is 0.20.\(^{18}\) Previous unpublished data (summarized above) suggested test–retest ICC = 0.86 and inter-rater reliability ICC = 0.76.

**Raters**

Two raters, both nursing assistants with no wheelchair/seating experience, from the facility were hired. The raters applied the SIT with each subject within 30 minutes of one another. Ratings occurred in separate rooms to limit contact between raters and ensure SIT scoring was independent. One rater returned two weeks later to test each participant again to estimate test–retest reliability.

The assessment by an occupational therapist, with 10 years experience prescribing wheelchair systems and Ontario Assistive Devices Program Authorizer credentialing, was used as the criterion standard to determine whether intervention was needed. The postassessment conclusion of the therapist provided indication of the SIT’s accuracy. The criterion assessment occurred within 2–6 hours of the first application of the SIT. To limit bias the criterion had no access to the raters’ scores\(^{19}\) and likewise the raters were blinded from the results of the criterion. The protocol was approved by the Human Ethics Board at the University of Western Ontario.

**Analyses**

Descriptive statistics (means, standard deviations and proportions) were derived to describe the sample. The intraclass correlation coefficient (ICC) was derived to assess total score test–retest (ICC 2,1) and intrarater (ICC 2,2) reliability. Cohen’s kappa was used to assess item-by-item reliability and agreement between our criterion standard and a physical therapist with more than 10 years of experience prescribing wheelchairs.

Sensitivity and specificity statistics were derived to assess validity. To derive these statistics SIT scores were compared with the criterion assessment to verify presence or absence of the need for intervention. Sensitivity and specificity were calculated for SIT summary scores of 1 through 8. Then the sensitivity scores were plotted against the proportion of false positive results \((1 - \text{specificity})\) to produce receiver operating characteristics (ROC) curves for each rater. The area under the curve was calculated to provide an index of the goodness of fit\(^{15}\) and to assist with selecting the
best cut-off score of need for intervention. While sensitivity and specificity provide useful information about the tool, these statistics do not provide information about the meaningfulness of score results. Therefore the positive and negative predictive values were calculated to provide an indication of the conditional probabilities of the SIT scores. The positive predictive value indicates the percentage of individuals classified as needing intervention who truly require intervention. Other diagnostic properties calculated include the proportion of false positives and negatives and the diagnostic accuracy of the SIT at the various cut-off scores. Ninety-five per cent confidence intervals were calculated for all estimates. For estimates that were equal to 100%, the lower interval was calculated using the equation advocated by Handley and Lippman-Hand (1 − [n/3]) × 100%. All other confidence intervals were calculated based on Newcombe’s work, which corrects for estimates approaching the extremes (0 or 100%).

Results

Forty-three subjects began the study, but one resident died before final data collection was complete. The primarily female (n = 40) sample had a mean age of 83.2 years (SD 9.65). The primary admission diagnosis was related to musculoskeletal (n = 11), neurological (n = 10), cognitive (n = 8) or cardiorespiratory (n = 8) impairment while five subjects had other diagnoses. All subjects used manual chairs, 38 of which were standard wheelchairs and two were geriatric chairs that did not permit independent mobility. Twenty-one chairs were resident owned, 20 chairs were borrowed from the institution and one chair was on loan from an outside agency.

Distribution of the individualized items for the subjects ranged from 3 to 27 with selection of items 3 and 5 being lowest. Scores for both raters at time 1 ranged from 0 to 8 while the second session scores ranged from 0 to 10 for retest data. Mean SIT scores were 3.4 (SD 1.9) and 3.0 (SD 1.8) for raters 1 and 2 respectively, with a retest mean of 3.2 (SD 2) for rater 1.

The inter-rater reliability of the SIT was ICC = 0.83 (95% CI 0.68–0.91; F = 0.37), while the two-week test–retest reliability was 0.83 (95% CI 0.69–0.91; F = 3.23). The individual inter-rater item-by-item agreement kappas ranged from 0.29 to 1.00, while test–retest item agreement ranged from 0.25 to 1.00. Kappas were lowest (<0.50) for items 1, 3 and 5 of the SIT.

The criterion identified 28/42 subjects requiring intervention, establishing a 67% prevalence of need for intervention. The diagnostic properties for SIT cut-off scores ranging from 1 to 8 are presented in Table 1. Between-rater results are consistent for most values with minor variation within each of the properties. As an example, at a cut-off score of 2, rater 1 was able to correctly classify 28 true positives, 9 true negatives, with 0 false negatives and 5 false positives while using the SIT. This resulted in a sensitivity of 100% (95% CI 85–100), specificity of 64% (95% CI 36–86), positive predictive value of 85% (95% CI 67–94), negative predictive value of 100% (95% CI 46–100) and a diagnostic accuracy of 88% (95% CI 78–98). The values obtained for rater 2 were different for specificity (57%; 95% CI 30–81) and the false positive rate (17%; 95% CI 7–35) resulting in a slightly different diagnostic accuracy (86%; 95% CI 75–96).

As demonstrated by the ROC curve (Figure 1), the SIT provided better than chance discrimination of those who needed intervention from those who did not as evidenced by the ROC curve lying above the 45-degree ‘chance’ line. Further, the area under the curve for both raters 1 and 2 (0.855 and 0.862 respectively) exceeds 0.5, considered to be indicative of a nondiscriminating test. The cut-off score of 2 appears to provide the best result given the close proximity of this data point to the upper left-hand corner of the graph, suggesting the best combination of good sensitivity and minimal false positives.

Analysis for potential bias in the criterion reference’s determination of need for intervention, conducted using a small post-hoc evaluation of 10 randomly selected residents, revealed 100% agreement (kappa = 1.00) in classifying individuals between our criterion and the second assessor.

Discussion

The primary objective of this project was to design a screening instrument that would be useful for


**Clinical messages**

- The Seating Identification Tool (SIT) is an easy to use screening tool designed to identify individuals who may need additional intervention to improve their wheelchair seating system.
- SIT scores are stable between raters and over time.
- SIT scores appear to distinguish long-term care residents who need and those who do not need intervention to improve their wheelchair system.

Ideally a screening instrument should be sensitive enough to detect potential problems before they become serious in a nonclinical sample. Use of such a population-based sample reduces potential bias that might be introduced by using a clinical sample in which more severe cases are seen and the need for intervention is easier to detect. Therefore a simple random sample of individuals from a large LTC facility was used. We do not believe that the under-representation of men (4% of the sample) threatens the validity of our findings as sex should not influence the score. Further, the prevalence of need for intervention within our sample (67%) falls within the reported range (42–84%) of studies that have attempted to estimate the magnitude of problems in the LTC population.9–11

A cut-off score of 2 is recommended to provide the best combined sensitivity, specificity, positive and negative predictive values and to maximize diagnostic accuracy. Moreover, the false negative value is minimized and the ROC curve was closest to the upper left-hand corner, indicative of the best cut-off score.24,25 A cut-off score of 2 enabled us to achieve our primary objective in development of the SIT: to design an instrument that is diagnostically sensitive with high negative predictive

<table>
<thead>
<tr>
<th>SIT score</th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>False positive</th>
<th>False negative</th>
<th>Positive predictive</th>
<th>Negative predictive</th>
<th>Diagnostic accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rater 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>100 (85–100)</td>
<td>36 (14–64)</td>
<td>24 (12–42)</td>
<td>0 (0–54)</td>
<td>76 (58–88)</td>
<td>100 (92–100)</td>
<td>79 (65–89)</td>
</tr>
<tr>
<td>2</td>
<td>100 (85–100)</td>
<td>64 (36–86)</td>
<td>14 (6–33)</td>
<td>0 (0–37)</td>
<td>85 (67–94)</td>
<td>100 (92–100)</td>
<td>88 (75–95)</td>
</tr>
<tr>
<td>3</td>
<td>85 (66–95)</td>
<td>64 (36–86)</td>
<td>17 (7–36)</td>
<td>31 (10–61)</td>
<td>83 (64–93)</td>
<td>69 (54–81)</td>
<td>79 (65–89)</td>
</tr>
<tr>
<td>4</td>
<td>54 (34–72)</td>
<td>93 (64–100)</td>
<td>6 (0–32)</td>
<td>50 (30–70)</td>
<td>94 (68–100)</td>
<td>50 (36–64)</td>
<td>67 (52–79)</td>
</tr>
<tr>
<td>5</td>
<td>32 (17–52)</td>
<td>93 (64–100)</td>
<td>10 (1–46)</td>
<td>59 (41–76)</td>
<td>90 (54–99)</td>
<td>38 (25–53)</td>
<td>52 (37–66)</td>
</tr>
<tr>
<td>6</td>
<td>25 (11–45)</td>
<td>93 (64–100)</td>
<td>13 (1–53)</td>
<td>62 (44–77)</td>
<td>88 (47–99)</td>
<td>36 (23–51)</td>
<td>48 (34–63)</td>
</tr>
<tr>
<td>7</td>
<td>11 (3–29)</td>
<td>100 (73–100)</td>
<td>0 (0–69)</td>
<td>64 (47–78)</td>
<td>100 (31–100)</td>
<td>36 (23–51)</td>
<td>41 (27–56)</td>
</tr>
<tr>
<td>8</td>
<td>4 (0–20)</td>
<td>100 (73–100)</td>
<td>0 (0–95)</td>
<td>66 (49–79)</td>
<td>100 (5–100)</td>
<td>42 (28–57)</td>
<td>36 (23–51)</td>
</tr>
<tr>
<td><strong>Rater 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>100 (85–100)</td>
<td>36 (14–64)</td>
<td>24 (12–42)</td>
<td>0 (0–54)</td>
<td>76 (58–88)</td>
<td>100 (92–100)</td>
<td>79 (65–89)</td>
</tr>
<tr>
<td>2</td>
<td>100 (85–100)</td>
<td>57 (30–81)</td>
<td>17 (7–35)</td>
<td>0 (0–40)</td>
<td>82 (64–93)</td>
<td>100 (92–100)</td>
<td>86 (72–93)</td>
</tr>
<tr>
<td>3</td>
<td>57 (37–75)</td>
<td>79 (49–94)</td>
<td>16 (4–40)</td>
<td>52 (31–73)</td>
<td>94 (60–96)</td>
<td>48 (34–63)</td>
<td>64 (49–77)</td>
</tr>
<tr>
<td>4</td>
<td>36 (19–56)</td>
<td>93 (64–100)</td>
<td>9 (0–43)</td>
<td>58 (39–75)</td>
<td>91 (57–100)</td>
<td>42 (28–57)</td>
<td>55 (40–69)</td>
</tr>
<tr>
<td>5</td>
<td>29 (14–49)</td>
<td>100 (73–100)</td>
<td>0 (0–40)</td>
<td>59 (41–75)</td>
<td>100 (60–100)</td>
<td>41 (27–56)</td>
<td>52 (37–66)</td>
</tr>
<tr>
<td>6</td>
<td>14 (5–34)</td>
<td>100 (73–100)</td>
<td>0 (0–60)</td>
<td>63 (46–78)</td>
<td>100 (40–100)</td>
<td>37 (24–52)</td>
<td>43 (29–58)</td>
</tr>
<tr>
<td>7</td>
<td>7 (1–25)</td>
<td>100 (73–100)</td>
<td>0 (0–80)</td>
<td>65 (48–79)</td>
<td>100 (20–100)</td>
<td>35 (22–50)</td>
<td>38 (25–53)</td>
</tr>
<tr>
<td>8</td>
<td>4 (0–20)</td>
<td>100 (73–100)</td>
<td>0 (0–95)</td>
<td>66 (49–79)</td>
<td>100 (5–100)</td>
<td>42 (28–57)</td>
<td>36 (23–51)</td>
</tr>
</tbody>
</table>

Values in parentheses are 95% confidence interval.
values. Doing so meant that we would likely sacrifice specificity and corresponding high positive predictive values. This position seems appropriate, as there is minimal liability or stigma in being labelled with a need for intervention. The drawback of this is an increased likelihood of false positives or an increased cost in time and money spent assessing individuals who do not require intervention. However, if we assume that the alternative is to have all assessed by therapists in a formal clinic setting, use of the SIT would reduce the number of assessments resulting in overall cost savings. For research purposes a cut-off of 2 might inflate the estimated prevalence of need for intervention in which case, use of confidence intervals is suggested or, alternatively, the researcher may choose a higher cut-off score.

A limitation of selecting a cut-off score of 2 is that items 1, 2, 4 and 10 are each weighted as 2. Selection of one of these items automatically indicates a need for intervention and would increase the number of false positives. Because

---

**Figure 1** Receiver operating characteristics curve (ROC) for rater 1. ROC for rater 2 is almost identical. Area under the curve = 0.855 (95% CI 0.720, 0.989) for rater 1 and 0.862 (95% CI 0.742, 0.982) for rater 2. *Numbers along ROC line correspond with different SIT cut-off scores.*
these items are all related to an increased potential for skin breakdown,\textsuperscript{12} which in turn is associated with considerable economic\textsuperscript{26–28} and quality of life consequences,\textsuperscript{29} we believe that their weighting is justified. Our theoretical rationale for weighting will be explored empirically in future studies.

Results of this study suggest that SIT scores are relatively stable over time and between raters. The magnitude of the reliability coefficients is encouraging given that the raters were health care providers with no knowledge or experience with wheelchairs and/or seating devices. The ICC for inter-rater reliability (0.83) was higher than the coefficient we obtained during earlier developmental work (ICC = 0.76). This may be a result of the changes made to the SIT items or it may be related to selecting nursing staff who work with the participants to act as raters for this study. This approach best represents clinical reality within a LTC facility, i.e., these staff would most likely be the ones making referrals for formal seating interventions. Further, these raters would probably have better knowledge of the participants over time, which is important given that the SIT items are framed over the past four weeks. Ultimately this familiarity may have led to the improved reliability in this study. For research purposes the SIT should also be usable by raters who do not know the subjects. Thus, we are investigating the measurement properties when raters are unfamiliar with participants.

One subject died during the retest interval, indicating how quickly health status changes in these facilities. It seems plausible that retest reliability would improve over a one-week retest period. Further our results were obtained with minimal rater training (approximately 30 minutes) or explanation regarding the definitions of the SIT items. We did this to understand of how well this instrument could be used without formal training. Standardizing the instructions may improve the reliability, consequently we have developed a manual (available by contacting the first author) and are evaluating whether training improves the reliability. The low kappas observed for items 1 and 3 should be interpreted with caution. Limited variation, which happens when most agreement occurs with a single choice, can cause coefficient instability.\textsuperscript{30,31} The low kappa associated with item 5 suggests this item may require refinement to reliably capture discomfort. While we advocate keeping these items for reasons related to content validity, study to determine the suitability of these items is underway.

Our selection of criterion reference may be perceived as a less than perfect measure and a potential source of bias. Given the nature of assessment in this field, there is no unequivocal method of determining need for intervention. The 100% agreement reached between our criterion and an independent therapist increases our confidence that our standard provided good determination of the need for intervention.

Other potential SIT uses include: estimating the requirement for intervention of institutionalized adults enabling planning for the institutionalized population; assistance prioritizing client waitlists; and overview of identified seating problems for referred individuals. Finally, the SIT may assist in education of care providers who have minimal experience with wheelchairs. Additional study is required to determine its utility for these applications and independent replication of the present study with a larger sample is also encouraged.

Acknowledgements
The authors wish to thank participants who donated their time to provide the data, the Parkwood Hospital Foundation for funding the study and the Canadian Institutes of Health Research and Michael Smith Foundation for Health Research for financial support.

References
10 Bardsley GI. The Dundee seating programme. Physiotherapy 1984; 70: 59–63.
28 Erwin-Toth P. Cost-effective pressure ulcer management in extended care. Ostom Wound Management 1995; 4: 64S–8S.
## Appendix – Seating Identification Tool (SIT)

<table>
<thead>
<tr>
<th>Within the last four (4) weeks:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Has the individual had red areas on their bottom?</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>2) Has the individual had an open pressure sore on their bottom?</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>3) Has the individual had red areas on their back?</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>4) Has the individual had an open pressure sore on their back?</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>5) Has the individual reported or demonstrated behaviours that indicate they could be in discomfort or pain while sitting for any length of time? (such as moaning, grimacing, or agitation)</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>6) Has the individual had difficulty propelling their wheelchair? (if the individual does not propel their wheelchair circle)</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>7) Has the individual required repositioning as a result of sliding or leaning?</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>8) Has an anti-slide device such as a foam bolster, pommel, roll bar, “posture pal”, or posey restraint been used?</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>9) Have rolled blankets, pillows or homemade devices been used to prevent leaning?</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>10) Has the individual not been using a wheelchair seat cushion? (do not include linens, pillows, incontinence pads, or homemade foam cushions)</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>11) Has the individual tipped their wheelchair or been at risk of tipping their wheelchair?</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

### Overall score

Assessment of the Seating Identification Tool