



# *Pediatric Measure of Participation* (PMoP)

## User Manual

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## Table of Contents

<b>Section 1: Pediatric Measure of Participation (PMoP) Overview</b>	<b>1</b>
1.1    PMoP Background	
1.2    PMoP Development	
1.3    Advantages of using the PMoP and challenges it addresses	
1.4    Glossary and Reference	
<b>Section 2: PMoP Computerized Adaptive Tests</b>	<b>12</b>
2.1    Computerized Adaptive Tests (CATs) Background	
2.2    PMoP Domains and Instruments	
2.3    General Administration Guidelines	
2.4    Filter Questions	
2.5    How to Respond to Items	
2.6    PMoP CAT Items	
2.7    PMoP Instrument Scores	
<b>Section 3: PMoP Short Forms</b>	<b>21</b>
3.1    Short Forms Background	
3.2    PMoP Short Forms	
3.3    Short Form Administration Guidelines	
3.4    Scoring the PMoP Short Forms	
<b>Section 4: Interpreting PMoP Scores</b>	<b>35</b>
4.1    PMoP Score Interpretation	
<b>Appendix 1: Glossary</b>	<b>40</b>
<b>Appendix 2: Reference List</b>	<b>42</b>
<b>Appendix 3: PMoP CAT Response Scale and Items</b>	<b>44</b>



## Section 1:

# *Pediatric Measure of Participation*

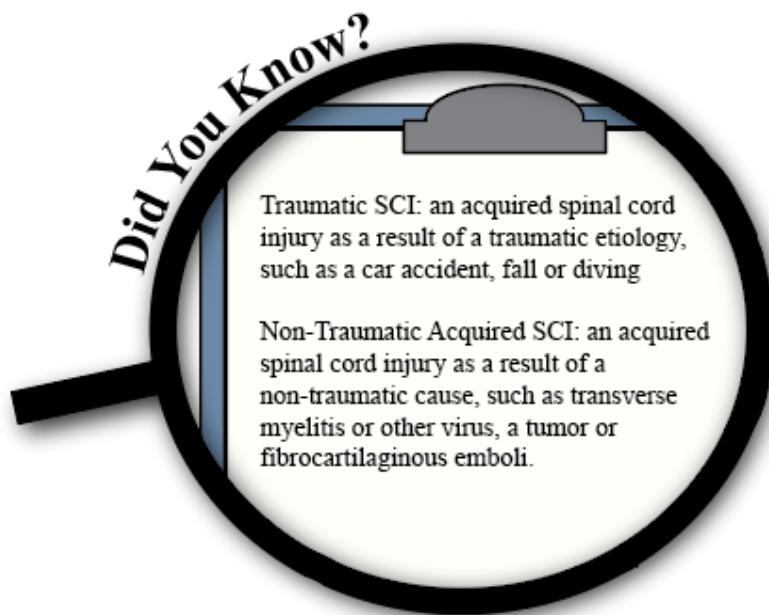
## (PMoP)

## Overview

### 1.1 Pediatric Measure of Participation Background

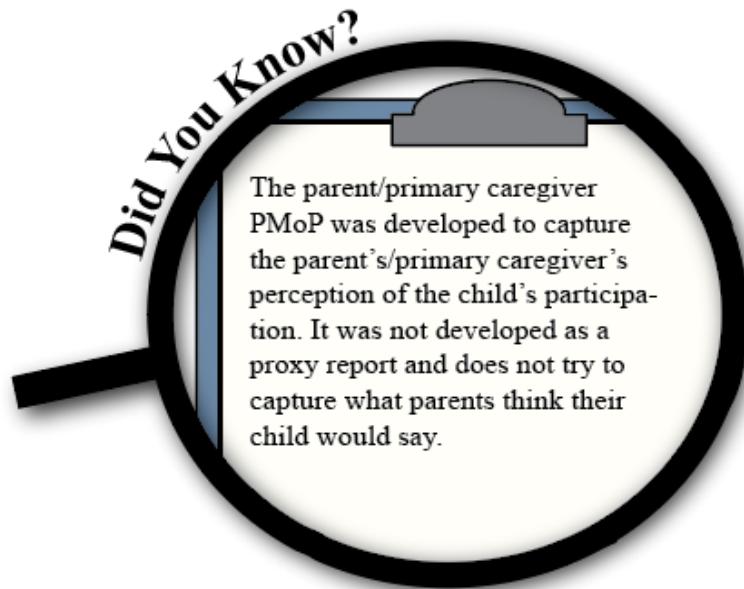
#### **What is the Pediatric Measure of Participation (PMoP)?**

The Pediatric Measure of Participation (PMoP) is a child and parent reported outcome measure designed to evaluate participation of children with spinal cord injury and dysfunction (SCI/D). The PMoP was developed and validated for children with traumatic and non-traumatic acquired SCI/D. In the context of the PMoP, participation is defined as a child's involvement in life situations across physical, social, spiritual, and virtual environments including home, school, and community. This definition is based on the conceptual framework of the World Health Organization's **International Classification of Functioning, Disability, and Health (ICF)**<sup>1</sup>, although it was enhanced to address situations specific to children in various environments.



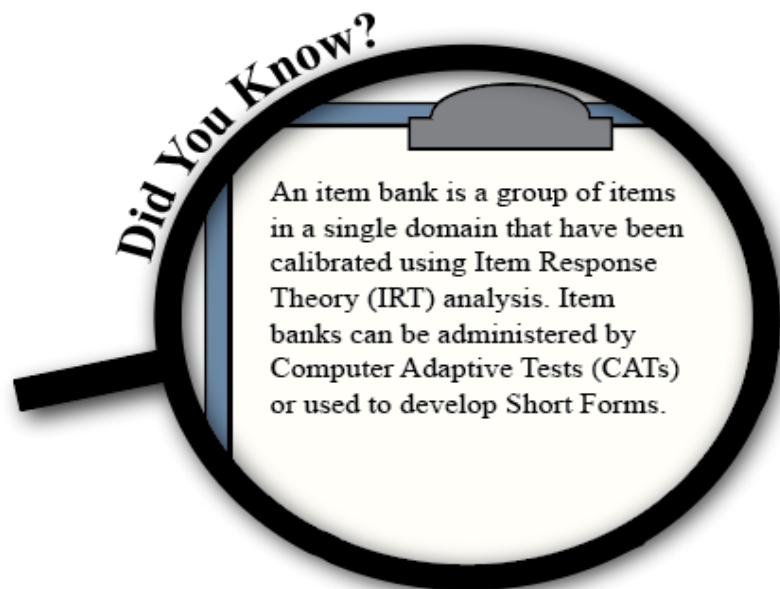
During the early stages of PMOP development, the decision was made to create separate versions for children and parents, owing to the importance of obtaining both child and parent reported outcomes. The child and parent instruments are different and provide different but equally important perspectives on outcomes of participation after pediatric SCI/D.

<sup>1</sup> World Health Organization. International Classification of Functioning, Disability and Health (ICF). Geneva, Switzerland 2001.



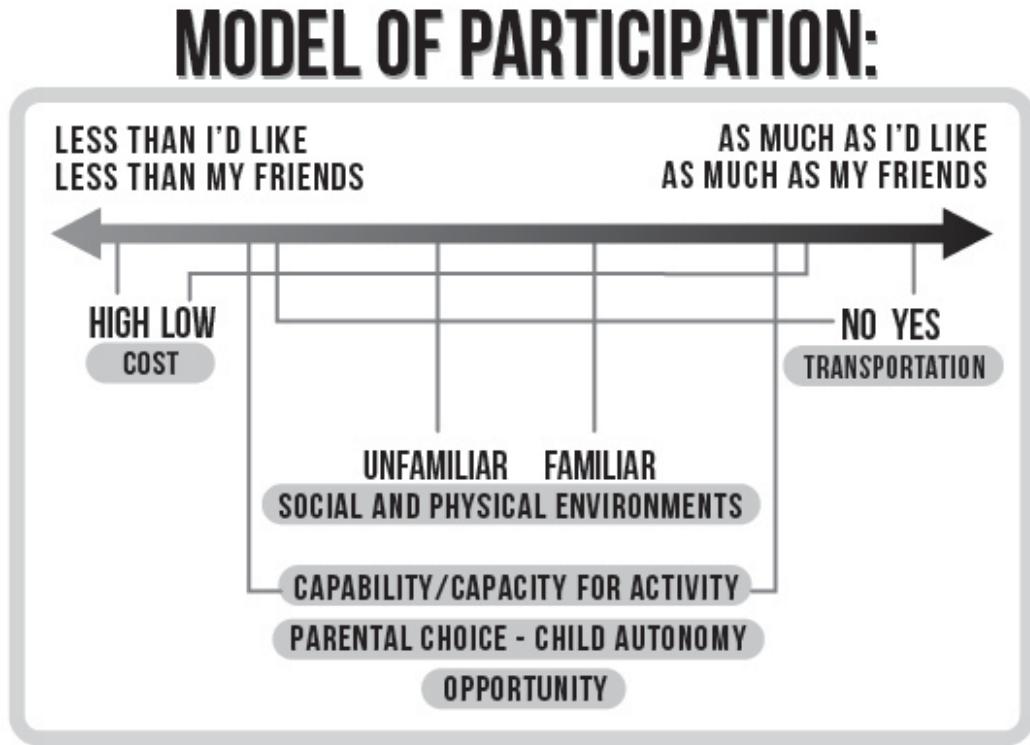
Because the PMoP was developed using item response theory (IRT), the first step to creating it was the development of an item pool. An item pool is a group of items that evaluate a single domain (for example, participation). Once the item pools were developed, they were administered to children with SCI/D and parents and then calibrated along a continuum from more to less (participative). There are two calibrated item banks of participation for child self-report: 1) participation relevant to what the child wants to do (self-participation) and 2) participation relevant to what the child's friends do (friend participation). There are also two calibrated item banks of participation for parent report: participation relevant to what the child wants to do (self-participation) and 2) participation relevant to what the child's friends do (friend participation).

To assist with comprehensive item development, a model of participation specific to children with SCI was developed (Figure 1). This model assumes that children participate as much as they want and as much as their peers in human and non-human environments when certain conditions are met. These conditions include an environment that is familiar with SCI and accommodating to the physical limitations of an SCI, manageable cost to participate, and available transportation. Based on this model, children participate less than they want and less than their friends as environments become less accommodating to the physical limitations of an SCI and when people in the environment are less familiar with SCI, when costs are too high and transportation is not available. This model acknowledges choice and autonomy as factors in a child's participation; however, their contribution to participation is less understood.



An item bank is a group of items in a single domain that have been calibrated using Item Response Theory (IRT) analysis. Item banks can be administered by Computer Adaptive Tests (CATs) or used to develop Short Forms.

Figure 1: Conceptual Model of Participation



## What does the PMoP measure?

The PMoP child instruments measure a child's report of his/her participation compared to what he/she wants to do (self-participation) and compared to what his/her friends do (friend participation), and the PMoP parent instruments measure a parent's report of their child's participation compared to what they think their child wants to do and what they think the child's friends do. The self-participation instrument occurs on a continuum from *as much as I want (as much as my child wants)* to *a lot less than I want (a lot less than my child wants)*. The friend participation instrument occurs on a continuum from *as much as my friends (as much as his/her friends)* to *a lot less than my friends (a lot less than his/her friends)* (See Table 1.1 for the complete PMOP response scale). The PMoP Short Forms (described in section 3) do not include the option *because I don't want to/because he/she doesn't want to* under the I don't do it/My child does not do it. Each instrument includes items (examples in Table 1.2) that have been calibrated from *as much as I want* or *as much as my friends* to *a lot less than I want* or *a lot less than my friends*.

**Table 1.1 Child Self-Report and Parent Report Response Scales**

		Child Self-Report	Parent Report
		I do it:	My child does it:
<b>Self-Participation</b>		<ul style="list-style-type: none"> <li>• As much as I want</li> <li>• A little less than I want</li> <li>• A lot less than I want</li> </ul>	<ul style="list-style-type: none"> <li>• As much as he/she wants</li> <li>• A little less than he/she wants</li> <li>• A lot less than he/she wants</li> </ul>
<b>Friend Participation</b>		<ul style="list-style-type: none"> <li>• As much as my friends</li> <li>• A little less than my friends</li> <li>• A lot less than my friends</li> </ul>	<ul style="list-style-type: none"> <li>• As much as his/her friends</li> <li>• A little less than his/her friends</li> <li>• A lot less than his/her friends</li> </ul>
<b>I don't do it:</b>		<b>My child does not do it:</b>	
		<ul style="list-style-type: none"> <li>• Because I can't</li> <li>• Because I don't want to</li> </ul>	<ul style="list-style-type: none"> <li>• Because he/she can't</li> <li>• Because he/she doesn't want to</li> </ul>

**Table 1.2 Examples of Participation Items**

Self-Participation	Friend Participation
I go places with my family	I go out to eat with my family
I eat with my friends in the school cafeteria	I go on school field trips with my class
I go to theater, concerts, or sporting events	I stay after school for activities
I sleep over my friend's house	I am on a community team or club

### PMoP Instruments

The PMoP is available as a child self-report for children with SCI/D age 8-21 and parent (or primary caregiver) report for parents of children with SCI/D age 4-21. Because the two instruments were developed separately and measure different constructs, scores from a child self-report and parent report cannot be compared. While the child and parent instruments contain the same number of items, each instrument contains slightly different items. (Table 1.3).

Also, while the PMoP measures two different domains (self-participation and friend participation), each domain is a separate instrument. These two instruments can be administered separately or in combination but the scores cannot be compared.

**Table 1.3 Number of items in each domain**

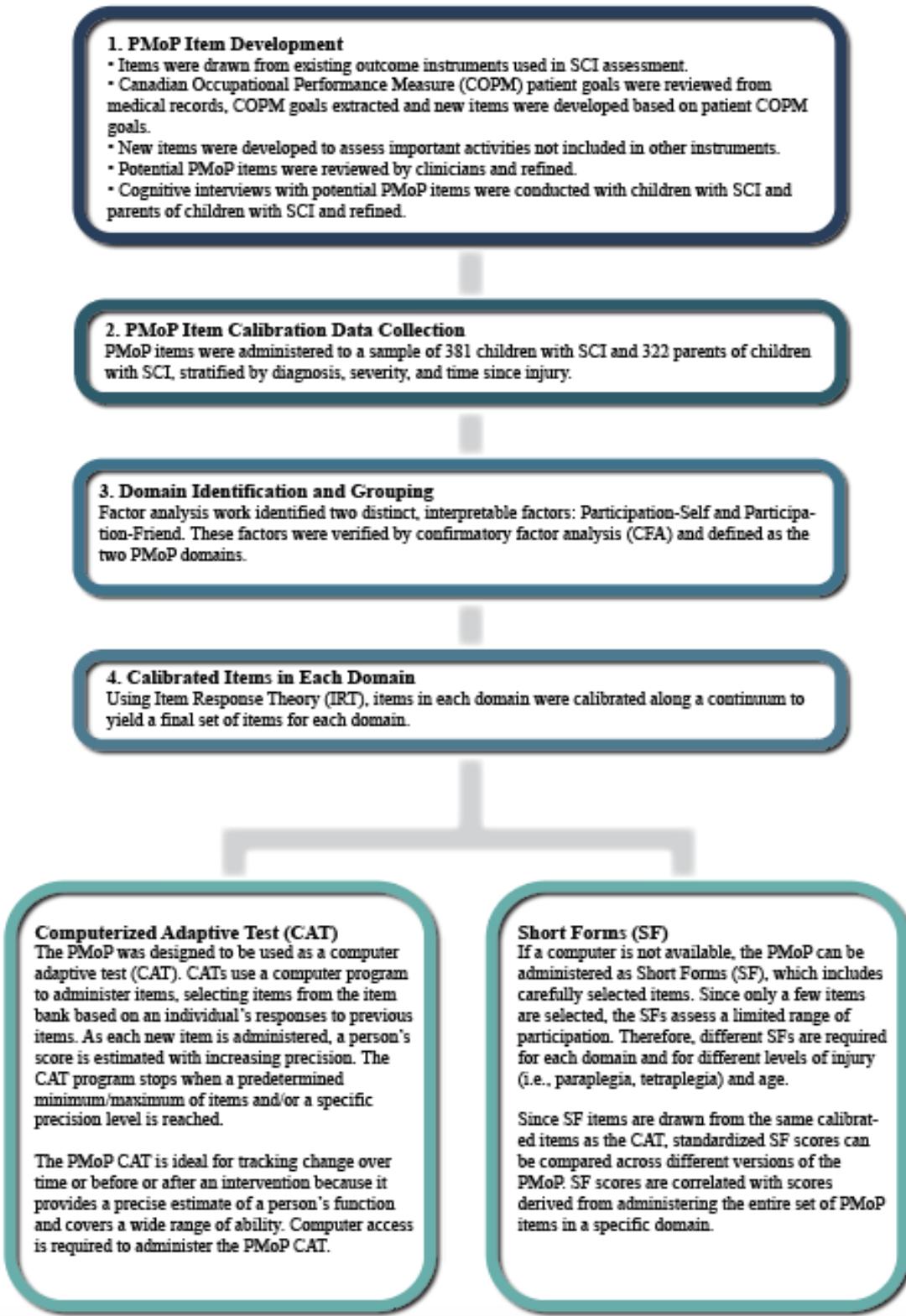
PMoP Version	Self-Participation	Friend Participation
<b>Child Report</b>	51 items	52 items
<b>Parent Report</b>	51 items	52 items

### 1.2 PMoP Development

Items for the PMoP were developed using an iterative process described in the Figure 2. The PMoP is available as a Computer Adaptive Test (CAT) and/or a Short Form (SF), which will be discussed in Sections 2 and 3, respectively.

The PMoP was developed with funding from Shriners Hospitals for Children® Research Advisory Board (RAB #9146), Boston University, and the Eunice Kennedy Shriver National Institute of Child Health and Human Development, as part of the Medical Rehabilitation Research Infrastructure Network (Grant No. 5R24HD065688-05). The PMoP items and instruments are copyrighted (2016) by Shriners Hospitals for Children®, Boston University, MJ Mulcahey, and Thomas Jefferson University. All rights reserved.

**Figure 2: PMoP Development Process**



### 1.3 Advantages of using the PMoP and the challenges it addresses

There are many advantages to using IRT based measures, such as the PMoP. The following section describes some of the challenges facing rehabilitation professionals during the assessment of participation in children with SCI/D and how the PMoP SCI provides a solution.

Challenge	Solutions and Advantages
<b>A void in measures of participation available specifically for assessment of children with SCI/D that accounts for various developmental time points and encompasses the broad range of participation relevant to children with SCI.</b>	<p>The PMoP is a patient reported outcome measure that assesses participation with references to self-participation and friend participation in the pediatric SCI population. The PMoP child instrument can be administered to children with SCI/D between 8 and 21 years of age regardless of the level of injury or time since injury. The PMoP parent instruments can be administered to parents of children with SCI/D between 4 and 21 years of age, regardless of the child's level of injury or time since injury. The items were intentionally developed to assess a wide range of activities that typify childhood participation. Below are examples of items that span the range from more participation to less participation.</p> <p>At home, I watch TV or movies.      At home, I listen to music.      I sleep over at my friend's house.      I go places in my friend's parent's car.</p>
<b>Few instruments relevant to SCI/D are tailored for child self-report. Children's and parent's reports often differ, but both perspectives are important for understanding outcomes.</b>	<p>The PMoP is available as a child self-report and parent report. The parent report assesses their view of their child's participation, based on their own observations, perceptions and experiences. It is not a proxy report. In other words, it does indicate what the parent thinks the child would say.</p>
<b>Few participation instruments assist with clinical decision making, capture the full range and unique aspects of participation after SCI/D, and provide important clinical information to detect change such as providing important clinical information about how children spend their time.</b>	<p>The PMoP can assess changes in participation over time and may be used in the rehabilitation and/or outpatient settings, generally once the child has been home for a period of time after initial rehabilitation. It can be used as a screening tool to assist with goal development during rehabilitation.</p> <p>The PMoP includes a comprehensive item bank with two domains relevant to SCI/D. The PMoP SCI CATs use filter questions to administer the most appropriate items to each individual and match items to each child's ability level so that a score is achieved with a few carefully selected items.</p> <p>The PMoP SCI can be administered to any child with SCI/D regardless of level of injury, completeness (severity) of injury, and time since injury.</p>

**Few participation instruments can be used for clinical and/or research purposes and offer multiple formats for use.**

The PMoP-SCI can be used in the clinical or research setting. It provides a quantitative score with interval level data. The PMoP-SCI can be administered as a Computerized Adaptive Test (CAT) or as a Short Form (SF).

A CAT, the preferred method of administration for both clinical and research purposes, uses computer algorithm to administer items based on the child's/parent's response to a previous item. CATs customize item selection to match the ability of each person. This is done by 1) filter questions and 2) tailoring each item based on the response the child/parent gave on the last item.

When CAT administration is not possible (i.e.: no access to a computer) or if an investigator wants to administer the same items to all research participants and/or at each time point, the PMoP can be administered as a SF. SF items come from the same calibrated item bank as the CAT. The SF includes items for different levels of injury (paraplegia and tetraplegia) and can be completed on paper using only a pen or pencil.

#### 1.4 Glossary and Reference

Appendix 1 contains a glossary including terminology and definitions used throughout this manual and Appendix 2 is a list of references.



**Section 2:**  
*Pediatric Measure of Participation*  
(PMoP)

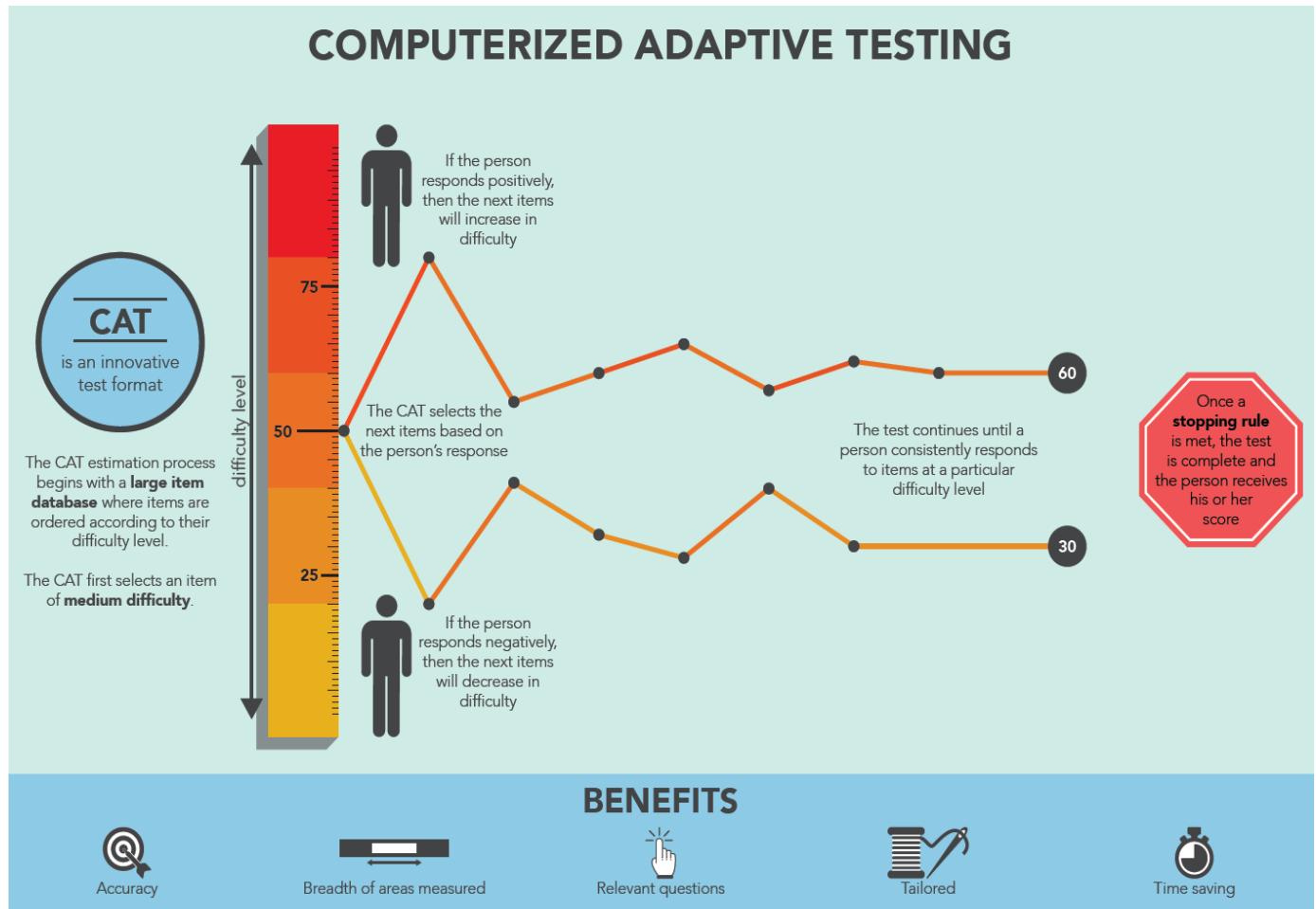
**Computerized Adaptive Tests**

## 2.1 Computerized Adaptive Tests (CATs) Background

### **What is a Computerized Adaptive Test (CAT)?**

**A computerized adaptive test (CAT)** is a method of assessment that is adaptive (conforms to each individual) and uses a computer to administer test items, in this case to children with SCI/D and to parents of children with SCI/D. It is *adaptive* in the sense that each ‘test’ is tailored to the unique level of each individual, as each question given is selected for that person based on his/her response to the previous question. Therefore, each person who takes an adaptive test is taking a different version of the test although all possible items come from the same large item bank. CATs avoid the administration of a large numbers of items by selecting only the questions from the item bank that will provide the maximum amount of information about that individual. This is done by ranking all the items in the bank in order, from easy to difficult. If a child or parent answers an item as “a little less than I want” the computer will then select an item that reflects participation in more familiar environments, and\or is less costly and\or does not require special transportation. In contrast, if an item is answered “as much as I want,” the computer will then select an item that requires more environmental demands. This process, item selection based on the response to the previous item, continues until the completion of the CAT. CATs therefore allow for efficient point-of-care collection of outcome information that can feasibly be implemented in busy clinical and research settings. CATs are being used with increasing frequency in the healthcare field. Figure 1 is a graphic illustration of how CATs work.

**Figure 1: The Computerized Adaptive Testing (CAT) Process**



## 2.2 PMoP Domains and Instruments

You will recall from Section 1 that the Pediatric Measure of Participation (PMoP) assesses participation in two different domains and includes child and parent (caregiver) reports:

**Self-Participation:** Assesses participation based on what the child would like to do

**Friend Participation:** Assesses participation based on what the child perceives friends do.

Thus, the PMoP consists of four instruments:

- ◊ Child report, self-participation
- ◊ Child report, friend participation
- ◊ Parent report, self-participation
- ◊ Parent report, friend participation

The four instruments were each developed based on a large-scale calibration study and in combination provide a high degree of flexibility in assessment. The child and parent report self and friend participation instruments can be administered separately or in combination based on the purpose of assessment, but if administered in combination, the scores from the self and friend instruments cannot be compared. Likewise, the child instrument(s) can be administered without administration of the parent instrument(s) and vice versa, or both the child and parent instruments can be administered. Because they are different instruments, scores from a child self-report cannot be compared to a parent report, and the self-participation and friend participation instruments are individual instruments and cannot be compared. The final items in each domain were those with the best psychometric properties (reliability and validity), and therefore the child self-report and parent report instrument contain different items and a different number of items.

The PMoP is available as a computerized adaptive test (CAT) or short form (SF). This section discusses the CAT.

## 2.3 General Administration Guidelines

### **How is the PMoP administered?**

The PMoP is a patient reported outcome (PRO) instrument, in which children and parents read and respond to the items independently. It is not to be administered or completed via interview.

### **To whom is the PMoP administered?**

The child with SCI/D answers the child self-report instrument(s), and the parent (or primary caregiver) of a child with SCI/D answers the parent report instrument(s). Currently, the PMoP is only available in English.

**What if the participant lacks the cognitive ability or language skills needed to answer the PMoP CAT?**

If the child or parent cannot read or answer the items due to cognitive delay, intellectual disabilities, language skills, or other reasons, the PMoP should not be administered. For example, if the parent of a child with SCI/D does not read English, the parent instrument should not be administered or if the child with SCI/D does not have the ability to read and respond to items due to a concomitant traumatic brain injury or any other reason, the child instrument should not be administered. However, either instrument (child self-report or parent report) can be administered independent of the other.

**What if the child lacks the motor skills needed to complete the assessment independently?**

A “recorder” (e.g., clinician, family member) can help to record responses from a child; however, the recorder should not influence or answer for the child.

**Can a person skip a question that does not pertain to his or her situation?**

The PMoP CAT does not allow for items to be skipped. Children and parents should be instructed to answer the questions to the best of their ability.

### 2.4 Filter Questions

The PMoP CAT begins with a two filter questions that will select appropriate and highly relevant items for that child during the administration of the CAT itself. Since the responses to these questions will serve as ‘filters’ to ensure accurate items are delivered, it is critical that the responses selected are “correct” or in other words, represents the child’s situation as accurately as possible. In order to ensure accuracy, the health care provider and parent can assist the child with completing the filter questions. All filter questions must be answered in order to continue to the next screen.

**The filter questions used by the PMoP CAT are shown below.**

**PMoP - Child Self-Report Instrument Filter Questions**

1. Age
2. Level of SCI

**PMoP- Parent Report Instrument Filter Questions**

1. Child’s Age
2. Child’s Level of SCI

## 2.5 How to Respond to Items

Once the filter questions have been answered, the PMoP CAT introduces the two response formats for each version:

### **Child Report Version: Self-Participation:**

- ◊ I don't do it because I can't
- ◊ I don't do it because I don't want to
- ◊ (I do it) A lot less than I want
- ◊ (I do it) A little less than I want
- ◊ (I do it) As much as I want

### **Child Report Version: Friend Participation:**

- ◊ I don't do it because I can't
- ◊ I don't do it because I don't want to
- ◊ (I do it) A lot less than my friends
- ◊ (I do it) A little less than my friends
- ◊ (I do it) As much as my friends

### **Parent Report Version: Self Participation**

- ◊ My child doesn't do it, because he/she can't
- ◊ My child doesn't do it, because he/she doesn't want to
- ◊ (My child does it) A lot less than he/she wants
- ◊ (My child does it) A little less than he/she wants
- ◊ (My child does it) As much as he/she wants

### **Parent Report Version: Friend Participation**

- ◊ My child doesn't do it, because he/she can't
- ◊ My child doesn't do it, because he/she doesn't want to
- ◊ (My child does it) A lot less than his/her friends
- ◊ (My child does it) A little less than his/her friends
- ◊ (My child does it) As much as his/her friends

If the child/parent places the stylus or cursor over a response option, a definition for that response will be displayed. The ability to review the meaning of each response is made available on the introductory screens that provide instructions on how to complete the instrument, as well as each time a new item is presented. The health care provider is able to assist by describing this feature and/or answering any questions during the time in which the child and parent are reading the test instructions. Once the response scales are reviewed, the child (and/or parent) is

instructed to “read the item on the screen and answer the question by selecting the response that best describes you (your child).”

### 2.6 PMoP CAT Items

A complete list of all the PMoP items, the response scales, and their explanations can be found in Appendix 3.

### 2.7 PMoP Instrument Scores

After the child or parent completes the PMoP CAT, a score report (Figure 2) will generate and provide a Standardized Score (T-Score) for each instrument that was administered. The Standardized Score (T-Score) places the child/parent’s score on a common metric based on the calibration study sample of 381 children with SCI/D and 322 parents of children with SCI/D. The Standardized Score (T-Score) has a mean of 50 with a standard deviation of 10.

Standardized Scores (T-Scores) can be interpreted as follows:

- ◊ A score of 50: the child’s ability is similar to the ability of the children included in the calibration sample
- ◊ A score of 40: the child’s ability is 1 standard deviation below the ability of children included in the calibration sample
- ◊ A score of 60: the child’s ability is 1 standard deviation above the ability of the children included in the calibration sample

Table 1 provides characteristics of the child sample used in the calibration study. Children with SCI/D on ventilators and children with SCI/D who were community ambulators were under-represented in the calibration study. Interpretation of the T-score is always in reference to the calibration sample. Thus, it is important to recognize the limitations of the relatively small calibration sample size, and under-representation of children with high level injuries while interpreting the PMoP t-scores.

A web-based version of the PMoP CATs is currently under development.

**Table 1: Calibration Study Sample Characteristics**

<b>Age Range</b>	<b>8-21 years</b>
<b>Age Group Count</b>	<5 years: 0 5-9 years: 17 10-14 years: 60 15-19 years: 255 20-21 years: 50
<b>ASIA Impairment Scale Count</b>	A: 205 B: 60 C: 56 D: 57 Unknown: 4
<b>Diagnosis Count</b>	Tetraplegia: 160 Paraplegia: 217 Unknown: 5
<b>Motor Level Count</b>	C1-C4: 35 C5-T1: 133 T2-T6: 86 T7-L2: 102 L3-S5: 21 Unknown: 5

**Figure 2: Score Report**

SCALES	T-Score	Standard Error
General Mobility	49.6	1.38
Manual Mobility	48.71	2.46
Power Mobility		
Ambulation	29.85	2.99
Daily Routine	54.34	2.23
Participation-Self	44.39	2.6
Participation-Friend	44.78	2.03

Example of score report for instruments on the Pediatric Spinal Cord Injury Measure (PEDI-SCI). As shown, in the bottom of the report, both the participation- self and friend instruments were administered. A score of 44.39 and 44.78 reflect slightly less participation than reported by the calibration sample, but within one standard deviation. The instruments listed above the participation instruments belong to the PEDI-SCI Activity Measure, which is a companion to the PMOP with a separate users' manual.



## Section 3:

### *Pediatric Measure of Participation (PMoP)*

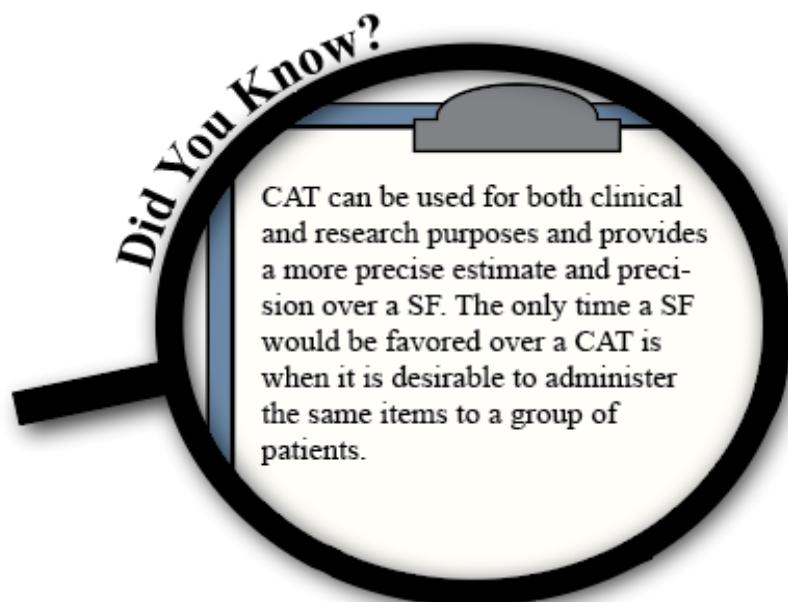
#### Short Forms

### 3.1 Short Forms Background

#### **What is a Short Form?**

While Computerized Adaptive Testing (CAT) is the preferred method of administration for both clinical and research purposes, a **Short Form (SF)** is a fixed (not dynamic) instrument that is administered via paper/pencil (or on a computer, but not using an adaptive approach). It contains a small number of items (for example, 10-15) from the item bank that are thought to be highly relevant and that cover a broad range of abilities. Unlike a CAT, it is NOT adaptive, and each individual answers the same set of items. A SF can be used if the CAT cannot be administered, such as when a computer is not available or when it is desirable to administer the same items to each child or parent, or the same items each time the instrument is administered. Like a CAT, a SF allows for point-of-care collection of patient-reported outcome information that can be implemented in busy clinical and research settings.

Because a SF is developed from the same calibrated item bank that is used for CAT, SF scores can be compared to CAT scores. For example, if a CAT is administered at one point and a SF is administered to the same child at a second point, the scores from point one (CAT) and point two (SF) can be compared.



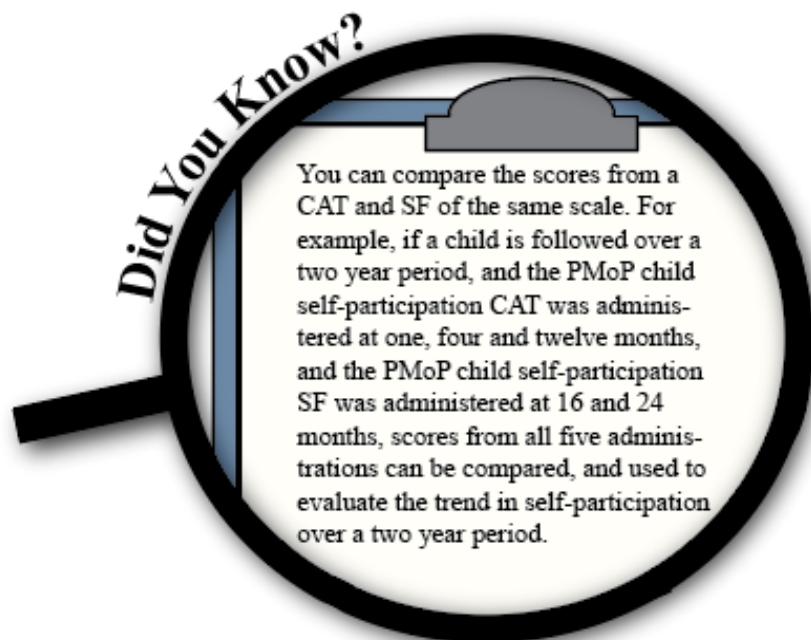
### 3.2 Pediatric Measure of Participation Short Forms

You will recall from Section 1 that the Pediatric Measure of Participation (PMoP) is composed of four separate instruments:

- ◊ Child report, self-participation
- ◊ Child report, friend-participation
- ◊ Parent report, self-participation
- ◊ Parent report, friend-participation

This section discusses the PMoP Short Forms.

All SF items were drawn from the same calibrated item banks that supply the PMoP CAT. PMoP CAT and SF scores can be compared. For example, if the PMoP child self-participation CAT was administered to a child at age 8 and the PMoP child self-participation SF was administered again at age 13, the scores from point one (CAT) and point two (SF) can be compared. However, scores from the different SF instruments cannot be compared. For example, the child self-participation SF scores cannot be compared to the child friend participation SF scores, nor can the child self- participation SF scores be compared to the parent self-participation SF scores. The only comparison that can be made is between the CAT and SF of the same instrument.



### 3.3 Short Form Administration Guidelines

#### **How is the PMoP administered?**

The PMoP is a patient reported outcome (PRO) instrument, in which children and parents read and respond to the items independently. It is not to be administered or completed via interview.

#### **Who is the PMoP administered to?**

Similar to CAT administration, the child with SCI/D answers the child self-report instruments and the parent (primary caregiver) of a child with SCI/D answers the parent report instruments. The PMoP is only available in English.

#### **What if the child with SCI lacks the cognitive ability or language skills needed to select responses to items?**

If the child (or parent) cannot read or answer the items due to cognitive delay, intellectual disabilities, poor language skills or other reasons, the PMoP should not be administered. For example, if the parent of a child with SCI/D does not read English, the parent instrument should not be administered, or if the child with SCI/D does not have the ability to read and respond to items due to a concomitant traumatic brain injury or any other reason, the child instrument should not be administered. However, either instrument (child self-report or parent report) can be administered independent of the other.

#### **What if the child with SCI lacks the motor skills needed to complete the assessment independently?**

A “recorder” (e.g., clinician, family member) can help to record responses from a child; however, the recorder should not influence or answer for the patient.

#### **How should I select the PMoP SFs?**

To select the correct PMoP SFs, use the decision tree in Figure 1. The selection of which PMoP SF is to be administered depends on who the respondent is (parent, child, both), what you want to assess (what child wants to do, what friends do, or both) and the age of the child with SCI (4-7, 9-11, 12-15, 16-21).

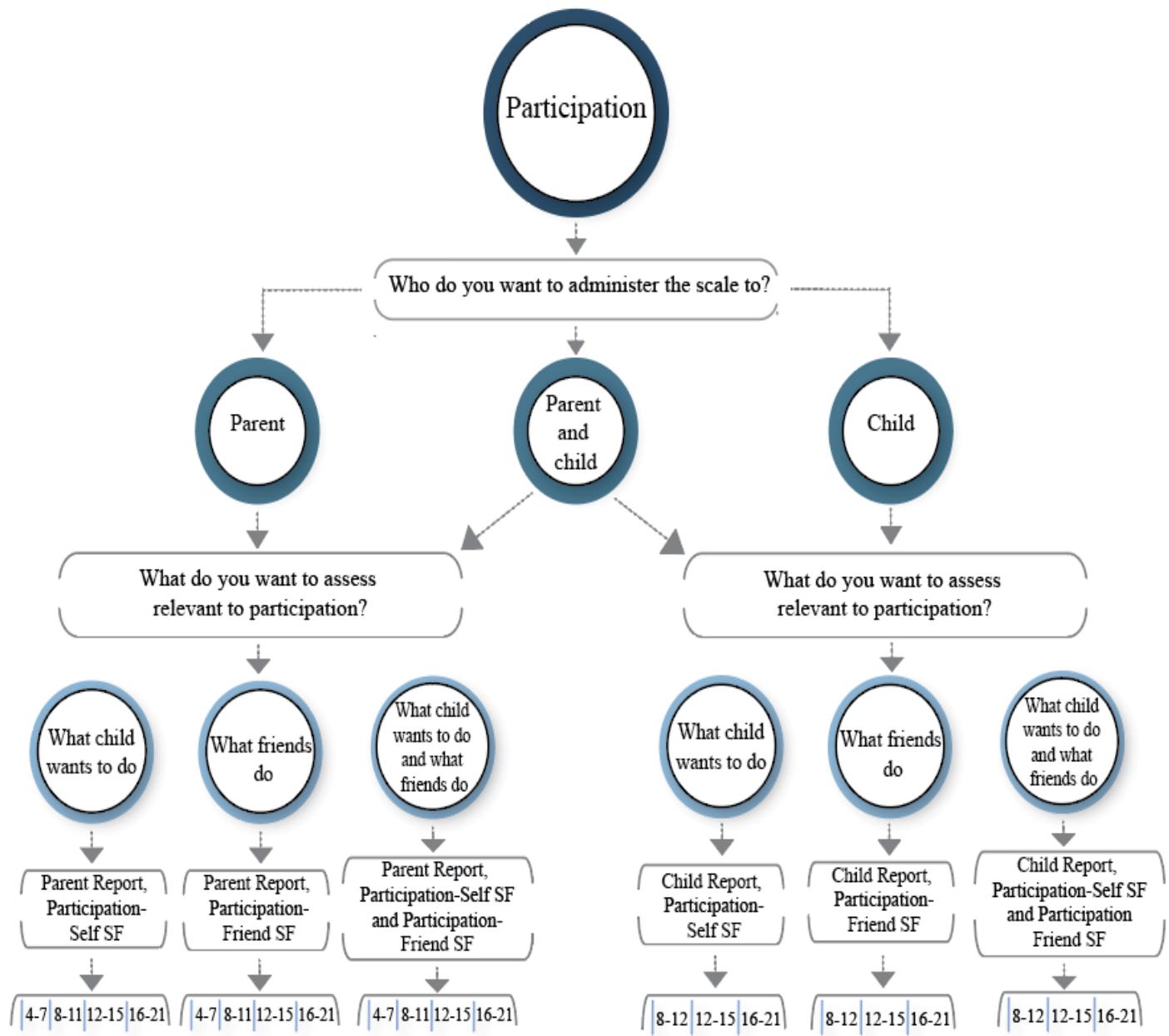
**How should I instruct individuals to fill out the SFs?**

Ensure that the child and parent read the instructions on the SF, and that they understand the response options and their definitions. For each item, instruct the child (parent) to check the box that is most like him/her (child). Instruct the child (parent) to answer each question the best they can.

**Figure 1: PMoP SF Administration Decision Tree**

The decision tree guides the selection using three questions:

1. Who do you want to administer the instrument to?
2. Which aspect of participation do you want to assess?
3. What is the age of the child?



### 3.4 Scoring the PMoP Short Forms

**Scoring the SF requires two steps. First, you must calculate the raw score and then you must use the transformation table to convert the raw score to a standardized score. The process of scoring is described below.**

#### **Calculating the Raw Score**

Each response on the SF has a corresponding value between 0 (don't do because I (my child) can't/don't want to) and 3 (as much as I (my child) want) (Table 1). To calculate the raw score, sum the corresponding values of the responses to each SF item. **Figure 2** is an example demonstrating that the raw score **of 30** was obtained by summing the numbers that correspond with the response option selected.

Table 1: Response Options and Corresponding Numerical Score

<b>Child Self Report Response: Self and Friend Participation</b>	<b>Numerical Score</b>	<b>Parent Report Response: Self and Friend Participation</b>
I don't do it because I can't	0	My child doesn't do it because he/she can't
A lot less than I want/my friends	1	A lot less than he/she wants/his/her friends
A little less than I want/my friends	2	A little less than he/she wants/his/her friends
As much as I want/my friends	3	As much as he/she wants/his/her friends

**Figure 2: Short Form Example**

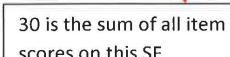
PEDI-SCI PMoP (V2) Child Respondent: Participation Compared to Self (age 12-15)

Name/ID: \_\_\_\_\_

Date \_\_\_\_\_

	I don't do it...	I do it...			Item response
		because I can't	a lot less than I want	a little less than I want	
Check the box that is most like you.					
1. At home, I use the internet.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	3
2. My friends call me to talk on the phone.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	3
3. I go out to eat with my family.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	3
4. I play outside games with other kids.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input checked="" type="checkbox"/> 2	<input type="checkbox"/> 3	2
5. Other kids include me in what they are doing.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	3
6. I go to the movies with my friends.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input checked="" type="checkbox"/> 2	<input type="checkbox"/> 3	2
7. At home, I get my own snacks.	<input type="checkbox"/> 0	<input checked="" type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	1
8. I go out to eat with my friends.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input checked="" type="checkbox"/> 2	<input type="checkbox"/> 3	2
9. I get my clothes in the morning.	<input checked="" type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	0
10. I play or hang out at my friend's house.	<input type="checkbox"/> 0	<input checked="" type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	1
I go to school. If yes, complete items 11-15. If no, stop here.					
11. I do my homework.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	3
12. I sit with my class during school meetings, plays, or assemblies.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	3
13. I eat with my friends in the school cafeteria.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	3
14. I put my books in my book bag.	<input checked="" type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	0
15. When in PE (gym class), I do the same activity as the other kids.	<input type="checkbox"/> 0	<input checked="" type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	1
Raw score (sum values for each item response) Possible score range = 0-45					30
Transformed Score (Use Child-Self 12-15 Score Conversion table)	43.83	Standard Error	3.4		

30 is the sum of all item scores on this SF



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### Converting the Raw Score to a Standardized Score

Each of the PMoP SFs has a unique transformation table that must be used to convert the raw score to a **standardized score**. SF score transformation tables are NOT interchangeable. In other words, every transformation table is different, and you must be sure to use the one that has been developed for the specific SF. To ensure the correct transformation table is used, each SF title is indicated directly above the raw score column (Figure 3).

Using the example from Figure 2 where the raw score was calculated to be 30, Figure 3 is the transformation table (Participation Self, Child Self-Report Age 12-15) that would be used to convert the raw score into the Standardized Score (T-Score). Once the raw score is found in column 1 on the transformation table, move to column 2 (labeled T-Scale) to obtain the Standardized score (T-Score). In this example, the Standardized Score (T-Score) is 43.83, as indicated in Figures 2 and 3.

**Figure 3: Transformation Table**

**PEDI-SCI Participation - PMoP (V2) Child Respondent – Compared to Self (age 12-15)**  
**School Score Conversion Table**

Use this table to transform the summed raw score for Items 1-15 (includes school items) to a 'T-Scale' score.

Be sure to check the title on each transformation table to be sure you are using the correct one.

Raw Score	T-Scale	Standard Error
0	15.71	3.76
1	16.76	4.04
2	18.05	4.28
3	19.3	4.44
4	20.47	4.52
5	21.65	4.54
6	22.8	4.52
7	23.92	4.46
8	25.01	4.38
9	26.07	4.29
10	27.1	4.2
11	28.09	4.11
12	29.05	4.02
13	29.98	3.93
14	30.9	3.85
15	31.78	3.77
16	32.65	3.7
17	33.5	3.63
18	34.34	3.57
19	35.16	3.52
20	35.97	3.47
21	36.77	3.43
22	37.55	3.39
23	38.33	3.36
24	39.11	3.34
25	39.88	3.33
26	40.65	3.32
27	41.43	3.32
28	42.22	3.34
29	43.01	3.36
30	43.83	3.4
31	44.66	3.45
32	45.52	3.51
33	46.43	3.6
34	47.37	3.7
35	48.37	3.83
36	49.45	4
37	50.59	4.18
38	51.84	4.39
39	53.31	4.76
40	54.6	4.91
41	56.21	5.16
42	58.7	5.92
43	58.91	5.58

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### Why are PMoP Short Form raw scores converted to standardized scores (T-Score)?

Raw scores are mathematically converted to a transformed (T-Score) with the SF Score Transformation Tables so that scores can be compared across SFs and CATs. **Raw scores should never be reported as there is no basis for interpretation. They simply provide a step to calculate the T-score on the short form instruments.**

### How is the Standardized Score (T-Score) interpreted?

The Standardized Score (T-Score) places the child or parent's score on a common metric based on the calibration study sample of 381 children with SCI/D and 322 parents of children with SCI/D. The Standardized Score (T-Score) has a mean of 50 with a standard deviation of 10. Standardized Scores (T-Scores) can be interpreted as follows:

- ◊ A score of 50: the child's ability is similar to the ability of the children included in the calibration sample
- ◊ A score of 40: the child's ability is 1 standard deviation below the ability of children included in the calibration sample
- ◊ A score of 60: the child's ability is 1 standard deviation above the ability of the children included in the calibration sample

Table 2 provides characteristics of the sample of children used in the calibration study.

**Table 2: Calibration Study Sample Characteristics**

<b>Age Range</b>	8-21 years
<b>Age Group Count</b>	<5 years: 0 5-9 years: 17 10-14 years: 60 15-19 years: 255 20-21 years: 50
<b>ASIA Impairment Scale Count</b>	A: 205 B: 60 C: 56 D: 57 Unknown: 4
<b>Diagnosis Count</b>	Tetraplegia: 160 Paraplegia: 217 Unknown: 5
<b>Motor Level Count</b>	C1-C4: 35 C5-T1: 133 T2-T6: 86 T7-L2: 102 L3-S5: 21 Unknown: 5

### What if a child or parent skips an item or several items on the SF?

The SF can be scored as long as the child (parent) answers more than half of the items on the SF. Use the following procedure to score the SF when items are skipped:

- ◊ As shown in Figure 4, calculate the mean score for the completed items by:
  - a. Sum the values that correspond to the responses items that were answered
  - b. Divide the sum by the number of items that were answered
  - c. Round decimals to the closest whole number
- ◊ Enter the mean score as the score for each unanswered item
- ◊ Calculate the raw score as described above.
- ◊ Use the transformation tables to convert the raw score to a standardized score, as described above.

Figures 4 and 5 provide an example of how to score a SF with skipped items.

**Figure 4****PEDI-SCI PMoP (V2) Child Respondent: Participation Compared to Self (age 12-15)**

Name/ID: \_\_\_\_\_

Date \_\_\_\_\_

	I don't do it... because I can't	I do it... a lot less than I want			Item response
		a little less than I want	as much I want		
Check the box that is most like you.					
1. At home, I use the internet.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	3
2. My friends call me to talk on the phone.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	
3. I go out to eat with my family.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	3
4. I play outside games with other kids.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input checked="" type="checkbox"/> 2	<input type="checkbox"/> 3	2
5. Other kids include me in what they are doing.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	3
6. I go to the movies with my friends.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input checked="" type="checkbox"/> 2	<input type="checkbox"/> 3	2
7. At home, I get my own snacks.	<input type="checkbox"/> 0	<input checked="" type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	1
8. I go out to eat with my friends.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input checked="" type="checkbox"/> 2	<input type="checkbox"/> 3	2
9. I get my clothes in the morning.	<input checked="" type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	0
10. I play or hang out at my friend's house.	<input type="checkbox"/> 0	<input checked="" type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	1
I go to school. If yes, complete items 11-15. If no, stop here.	Yes				
11. I do my homework.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	3
12. I sit with my class during school meetings, plays, or assemblies.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	3
13. I eat with my friends in the school cafeteria.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	3
14. put my books in my book bag.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	
15. When in PE (gym class), I do the same activity as the other kids.	<input type="checkbox"/> 0	<input checked="" type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	1
Raw score (sum values for each item response) Possible score range = 0-45					

**Transformed Score**

(Use Child-Self 12-15 Score Conversion table)

**Standard Error**

1. Sum of the items answered: 27
2. Divide the sum of items answered (27) by the number of items answered (13): 2.08
3. Round to the closest whole number: 2
4. Mean Score = 2

**Figure 5****PEDI-SCI PMoP (V2) Child Respondent: Participation Compared to Self (age 12-15)**

Name/ID: \_\_\_\_\_

Date \_\_\_\_\_

	I don't do it...	I do it...			Item response
		because I can't	a lot less than I want	a little less than I want	
Check the box that is most like you.					
1. At home, I use the internet.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	3
2. My friends call me to talk on the phone.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	2
3. I go out to eat with my family.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	3
4. I play outside games with other kids.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input checked="" type="checkbox"/> 2	<input type="checkbox"/> 3	2
5. Other kids include me in what they are doing.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	3
6. I go to the movies with my friends.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input checked="" type="checkbox"/> 2	<input type="checkbox"/> 3	2
7. At home, I get my own snacks.	<input type="checkbox"/> 0	<input checked="" type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	1
8. I go out to eat with my friends.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input checked="" type="checkbox"/> 2	<input type="checkbox"/> 3	2
9. I get my clothes in the morning.	<input checked="" type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	0
10. I play or hang out at my friend's house.	<input type="checkbox"/> 0	<input checked="" type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	1
I go to school. If yes, complete items 11-15. If no, stop here.	Yes				
11. I do my homework.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	3
12. I sit with my class during school meetings, plays, or assemblies.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	3
13. I eat with my friends in the school cafeteria.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	3
14. I put my books in my book bag.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	2
15. When in PE (gym class), I do the same activity as the other kids.	<input type="checkbox"/> 0	<input checked="" type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	1
Raw score (sum values for each item response) Possible score range = 0-45					31

Transformed Score (Use Child-Self 12-15 Score Conversion table)	44.66	Standard Error	
--	-------	----------------	--

4. Enter the mean score (2) for unanswered items  
 5. Calculate the Raw Score (31) and use the transformation table (Figure 3) to convert the raw score to a Standardized Score: 44.66



## Section 4: *Interpreting Pediatric Measure of Participation (PMoP)*

### Interpreting Scores

#### 4.1 PMoP Score Interpretation

Scores of each of the PMoP fall within one of four levels of participation, with level 1 representing less participation and level 4 representing full participation. Levels 3 and 4 both reflect less participation **outside** of home and school, but are distinguished by participation sometime less (level 2) and almost always as much (level 3) **in** home and school. Importantly, the score ranges for levels 1, 2, 3, and 4 are different for each instrument. As an example, for child-reported self- participation a score of 23 and lower fall within level 1, whereas in child-reported friend participation, a score of 27 and lower fall within level 1.

#### Participation-Self: Child

Level	1	2	3	4
Range	$\leq 23$	24-40	41-58	$\geq 59$
Description	<p>I do a lot less than I want in all places.</p> <p>All places could include</p> <ul style="list-style-type: none"> <li>• my home</li> <li>• school</li> <li>• a friend's house</li> <li>• other places like a restaurant or park</li> </ul>	<p>Sometimes I do what I want at</p> <ul style="list-style-type: none"> <li>• Home</li> <li>• School</li> </ul> <p>I do a lot less than I want at</p> <ul style="list-style-type: none"> <li>• A friend's house</li> <li>• Other places like a restaurant or park</li> </ul>	<p>I almost always do what I want at</p> <ul style="list-style-type: none"> <li>• Home</li> <li>• School</li> </ul> <p>I do a lot less than I want at</p> <ul style="list-style-type: none"> <li>• A friend's house</li> <li>• Other places like a restaurant or park</li> </ul>	<p>I do as much as I want in all places.</p> <p>All places could include</p> <ul style="list-style-type: none"> <li>• My home</li> <li>• School</li> <li>• A friend's house</li> <li>• Other places like a restaurant or park</li> </ul>

**Participation-Self: Parent**

Level	1	2	3	4
Range	$\leq 19$	20-36	37-63	$\geq 64$
Description	<p>My child does a lot less than he/she wants in all places.</p> <p>All places could include</p> <ul style="list-style-type: none"> <li>• Home</li> <li>• School</li> <li>• A friend's house</li> <li>• Other places like a restaurant or park</li> </ul>	<p>Sometimes my child does what he/she wants at</p> <ul style="list-style-type: none"> <li>• Home</li> <li>• School</li> </ul> <p>My child does a lot less than he/she wants at</p> <ul style="list-style-type: none"> <li>• A friend's house</li> <li>• Other places like a restaurant or park</li> </ul>	<p>My child almost always does what he/she wants at</p> <ul style="list-style-type: none"> <li>• Home</li> <li>• School</li> </ul> <p>My child does a lot less than he/she want at</p> <ul style="list-style-type: none"> <li>• A friend's house</li> <li>• Other places like a restaurant or park</li> </ul>	<p>My child does as much as he/she wants in all places.</p> <p>All places could include</p> <ul style="list-style-type: none"> <li>• Home</li> <li>• School</li> <li>• A friend's house</li> <li>• Other places like a restaurant or park</li> </ul>

**Participation-Friends: Child**

Level	1	2	3	4
Range	$\leq 27$	28-41	42-57	$\geq 58$
Description	<p>I do a lot less than my friends in all places.</p> <p>All places could include</p> <ul style="list-style-type: none"> <li>• My home</li> <li>• School</li> <li>• A friend's house</li> <li>• Other places like a restaurant or park</li> </ul>	<p>Sometimes I do what my friends do at:</p> <ul style="list-style-type: none"> <li>• Home</li> <li>• School</li> </ul> <p>I do a lot less than my friends at:</p> <ul style="list-style-type: none"> <li>• A friend's house</li> <li>• Other places like a restaurant or park</li> </ul>	<p>I almost always do what I want at:</p> <ul style="list-style-type: none"> <li>• Home</li> <li>• School</li> </ul> <p>I do a lot less than my friends at:</p> <ul style="list-style-type: none"> <li>• A friend's house</li> <li>• Other places like a restaurant or park</li> </ul>	<p>I do as much as my friend do in all places.</p> <p>All places could include</p> <ul style="list-style-type: none"> <li>• Home</li> <li>• School</li> <li>• A friend's house</li> <li>• Other places like a restaurant or park</li> </ul>

**Participation-Friends: Parents**

Level	1	2	3	4
Range	$\leq 23$	24-41	42-63	$\geq 64$
Description	<p>My child does a lot less than friends in all places.</p> <p>All places could include</p> <ul style="list-style-type: none"> <li>• Home</li> <li>• School</li> <li>• A friend's house</li> <li>• Other places like a restaurant or park</li> </ul>	<p>Sometimes my child does what friends do at:</p> <ul style="list-style-type: none"> <li>• Home</li> <li>• School</li> </ul> <p>My child does a lot less than friends at:</p> <ul style="list-style-type: none"> <li>• A friend's house</li> <li>• Other places like a restaurant or park</li> </ul>	<p>My child almost always does what friends do at:</p> <ul style="list-style-type: none"> <li>• Home</li> <li>• School</li> </ul> <p>My child does a lot less than friends at:</p> <ul style="list-style-type: none"> <li>• A friend's house</li> <li>• Other places like a restaurant or park</li> </ul>	<p>My child does as much as friend do in all places.</p> <p>All places could include</p> <ul style="list-style-type: none"> <li>• Home</li> <li>• School</li> <li>• A friend's house</li> <li>• Other places like a restaurant or park</li> </ul>



### Appendix 1: Glossary

- ◊ **Calibrated Item Bank:** Items that have been administered to a large sample and calibrated along a continuum from easy to difficult using IRT. The calibrated item bank forms the basis for CAT.
- ◊ **Classical Test Theory (CTT):** A theory of testing based on the idea that a person's observed or obtained score on a test is the sum of a true score (error free score) and an error score. This theory assumes that each person has a true score that would be obtained if there were no errors in measurement.
- ◊ **Computerized Adaptive Test (CAT):** A method for administrating a calibrated item bank. The program starts by administering a mid-level item (not too easy, not too hard). Based on the person's response to the first item, the next item selected will be more or less difficult. The selection process is repeated and the person's estimated score and standard error of the estimate is calculated as each item is completed. When a pre-established stopping rule is achieved (specific standard error or maximum number of items), the test is completed. CATs provide a precise estimate of a person's ability with a few well selected items. Since items are drawn from the same calibrated item bank, scores obtained over time can be compared as patients improve and are able to engage in more challenging activities.
- ◊ **Difficulty (Logit Score):** Locates each item along a continuum of item difficulty for each domain (e.g. participation-self).
- ◊ **Domain:** A specific construct that is assessed by a measure (i.e., participation-self, participation friend).
- ◊ **International Classification of Functioning Disability and Health (ICF):** A framework to describe and organize information on functioning and disability. The ICF framework provides a 'standard language and a conceptual basis for the definition and measurement of health and disability' and was approved for use by the World Health Assembly in 2001.

- ◊ **Item Pool:** A collection of items that are thought to measure a common construct (for example, wheeled mobility, participation-self). The first step in developing a CAT is to create an item pool. The items in the item pool are then administered to a large sample to calibrate them along a continuum. Once an item pool has been calibrated, it is referred to as a calibrated item bank (see above).
- ◊ **Item Response Theory (IRT):** IRT analyses create a model to determine the probability of observing responses to an item as a function of a specific trait assessed. In contrast to measures developed using Classical Test Theory (CTT), IRT-based measures place items on a common scale, which allows linking of scores from multiple forms of an assessment onto a single reporting scale. With this approach, scores are comparable and have the same meaning across the different forms of the assessment.
- ◊ **Non-Traumatic Acquired SCI:** An acquired spinal cord injury as a result of non-traumatic causes, such as transverse myelitis, tumor, fibrocartilaginous emboli, etc.
- ◊ **Patient Reported Outcome (PRO):** A patient's self-report of functional status, participation or quality of life. PROs are measures that capture what is being measured from the patient's perspective. The PMoP is a PRO, specifically a child reported outcome instrument, as well as a parent reported outcome instrument.
- ◊ **Proxy:** Someone who answers the questions on behalf of the patient if the patient is unable to do so for him/herself. The proxy respondent determines the content of the answer based upon his or her knowledge or direct observation of the patient. The proxy respondent can be a family member, close personal friend, or a clinician. The PMoP parent instrument is NOT a proxy report; it obtains parents' perceptions of their children's function but does not ask them to answer for their child.
- ◊ **Short Form (SF):** Unlike CATs, SFs are not customized for each individual patient. Instead, specific items are selected and administered to all respondents. Items are selected from IRT calibrated item banks to develop assessments that can be administered if computerized adaptive tests cannot be implemented. The following criteria are used to select SF items: 1.) Reflect activities that are appropriate for a specific target population (e.g. paraplegia vs. tetraplegia); 2.) Assess an appropriate range of difficulty (e.g., high vs. low-level of function); and 3.) Demonstrate the ability to discriminate among persons with different levels of ability.
- ◊ **Slope:** Used to select items best able to distinguish between different levels of ability.
- ◊ **Traumatic SCI:** An acquired spinal cord injury as a result of traumatic etiologies such as car accident, fall, diving accident, etc.



### Appendix 2: References

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Appendix 3: Pediatric Measure of Participation Items and Response Scale

Child Report: Pediatric Measure of Participation

**Child Self Report: Participation Self**

For each question think about what **you want to do** and choose one of the answers below that is most like you:

- ◊ **I don't do it, because I can't:** I cannot do this because of my spinal cord injury.
- ◊ **I don't do it, because I don't want to:** I can do this but I don't because I decided not to.
- ◊ **I do it a lot less than I want:** I do it, but hardly ever.
- ◊ **I do it a little less than I want:** I do it sometimes, but I want to do it more.
- ◊ **I do it as much as I want:** I do it as much as I want to

Item ID	Item	Slope	Difficulty
1PS8	I do my homework.	0.844	-3.466
1PS7	At home I read books or magazines.	0.849	-3.109
1PS48	I go places with my family.	0.932	-2.955
1PS4	At home, I use the internet.	0.637	-2.937
1PS6	When I play games with others, I follow the rules.	1.143	-2.775
1PS49	I play video games.	0.752	-2.719
1PS15	Specials mean art, technology, physical education, and music. I go to specials with my class.	0.754	-2.68
1PS43	My friends call me to talk on the phone.	1.102	-2.507
1PS18	I sit with my class during school meetings, plays, or assemblies.	0.98	-2.351
1PS17	I eat with my friends in the school cafeteria.	1.549	-2.055
1PS58	I hang out outside with other kids.	1.298	-2.034
1PS57	I go out to eat with my family.	1.219	-1.972
1PS55	I date.	0.83	-1.968
1PS1	At home, I play with toys.	1.682	-1.915
1PS36	I go to church or a place of worship.	0.793	-1.885
1PS20	At school, I go to recess or on the playground.	1.161	-1.7
1PS11	I play outside games with other kids.	0.97	-1.656
1PS65	Other kids include me in what they are doing.	1.281	-1.578
1PS33	I go to theaters, concerts, and sporting events.	1.304	-1.522
1PS44	When I am at home, I play board games.	1.26	-1.509
1PS21	I go on school field trips with my class.	1.268	-1.358
1PS34	I go to the movies with my friends.	1.774	-1.099
1PS23	I am on a school team or club.	0.858	-1.095
1PS50	When I am done playing, I clean up.	2.038	-1.076
1PS27	I go to the mall with my friends.	2.046	-1.011
1PS28	I go to the store with my friends.	2.326	-0.983
1PS13	At home, I get my own snacks.	1.846	-0.969
1PS14	I put my books in my book bag.	1.834	-0.847
1PS22	I stay after school for activities.	1.674	-0.834
1PS37	I go out to eat with my friends.	2.613	-0.824
1PS31	I go to dances.	1.137	-0.707
1PS12	I get my clothes in the morning.	2.146	-0.694
1PS47	Without anyone asking me, I help out around the house.	1.474	-0.683
1PS60	I go to the arcade with my friends.	2.017	-0.666

1PS29	I play or hang out at my friend's house.	2.145	-0.663
1PS10	I am on a community team or club.	1.462	-0.611
1PS51	I keep my bedroom clean.	1.857	-0.509
1PS40	I serve myself at a salad bar or ice cream bar.	2.019	-0.484
1PS35	I go places in my friend's car.	2.335	-0.448
1PS30	I eat dinner at my friend's house.	2.597	-0.401
1PS56	I take lessons to learn a special talent like dance or music.	1.254	-0.356
1PS52	After my bath or shower, I put the towels where they belong	2.215	-0.312
1PS38	I try clothes on at the store.	1.54	-0.248
1PS59	I go places in my friend's parent's car.	2.116	-0.244
1PS16	I make my own breakfast.	2.183	-0.221
1PS24	I go to my friend's house after school.	2.144	-0.062
1PS32	I sleep over my friend's house	2.314	0.005
1PS19	When in PE (gym class), I do the same activity as the other kids.	0.672	0.118
1PS39	I go on roller coasters or the Ferris wheel.	1.343	0.155
1PS53	I drive a car.	1.618	0.521
1PS41	A job means doing something to get paid. I have a job.	1.144	0.696

### Child Self Report: Participation Friend

For each question, think about **what you do and what your friend's do** and choose one of the answers below that is most like you:

- ◊ **I don't do it, because I can't:** I cannot do it because of my spinal cord injury.
- ◊ **I don't do it, because I don't want to:** I can do this but I don't because I decided not to.
- ◊ **I do it a lot less than my friends:** I do it but my friends do it a lot more than I do.
- ◊ **I do it a little less than my friends:** I do it sometimes, but my friends do it more than I do.
- ◊ **I do it as much as my friends:** I do it as much as my friends do. My friends don't do it more than I do it.

Item ID	Item	Slope	Difficulty
1PF7	At home I read books or magazines.	0.609	-3.874
1PF8	I do my homework.	0.761	-3.666
1PF49	I play video games.	0.575	-2.91
1PF4	At home, I use the internet.	0.588	-2.719
1PF48	I go places with my family.	1.111	-2.434
1PF17	I eat with my friends in the school cafeteria.	1.303	-2.207
1PF26	I go places such as the hairdresser or dentist.	1.294	-2.202
1PF15	Specials mean art, technology, physical education, and music. I go to specials with my class.	0.96	-2.195
1PF36	I go to church or a place of worship.	0.684	-2.093
1PF18	I sit with my class during school meetings, plays, or assemblies.	1.195	-2.042
1PF42	I call my friends to talk with them on the phone.	1.268	-2.036
1PF57	I go out to eat with my family.	1.216	-2.008
1PF20	At school, I go to recess or on the playground.	1.083	-1.93
1PF55	I date.	0.953	-1.71
1PF1	At home, I play with toys.	1.722	-1.607
1PF9	My friends come to my house	1.479	-1.57
1PF44	When I am at home, I play board games.	1.2	-1.56
1PF45	At home, I do arts and crafts.	1.035	-1.541
1PF58	I hang out outside with other kids.	1.698	-1.494
1PF65	Other kids include me in what they are doing.	1.402	-1.427
1PF21	I go on school field trips with my class.	1.371	-1.351
1PF33	I go to theaters, concerts, and sporting events.	1.804	-1.222

1PF11	I play outside games with other kids.	1.279	-1.205
1PF50	When I am done playing, I clean up.	1.785	-1.17
1PF23	I am on a school team or club.	0.795	-1.136
1PF25	I go to my friend's parties.	1.916	-0.971
1PF34	I go to the movies with my friends.	2.392	-0.922
1PF27	I go to the mall with my friends.	2.818	-0.851
1PF28	I go to the store with my friends.	3.214	-0.835
1PF13	At home, I get my own snacks.	1.748	-0.821
1PF22	I stay after school for activities.	1.593	-0.787
1PF14	I put my books in my book bag.	2.115	-0.749
1PF37	I go out to eat with my friends.	3.214	-0.719
1PF60	I go to the arcade with my friends.	2.554	-0.662
1PF29	I play or hang out at my friend's house.	2.591	-0.632
1PF12	I get my clothes in the morning.	2.424	-0.599
1PF51	I keep my bedroom clean.	1.927	-0.594
1PF31	I go to dances.	1.513	-0.565
1PF10	I am on a community team or club.	1.51	-0.509
1PF40	I serve myself at a salad bar or ice cream bar.	2.068	-0.508
1PF56	I take lessons to learn a special talent like dance or music.	1.206	-0.477
1PF35	I go places in my friend's car.	2.616	-0.39
1PF52	After my bath or shower, I put the towels where they belong.	2.117	-0.366
1PF30	I eat dinner at my friend's house.	3.289	-0.355
1PF16	I make my own breakfast.	2.106	-0.218

1PF59	I go places in my friend's parent's car.	2.339	-0.21
1PF38	I try clothes on at the store.	1.594	-0.207
1PF24	I go to my friend's house after school.	2.581	-0.113
1PF32	I sleep over my friend's house.	2.397	-0.016
1PF39	I go on roller coasters or the Ferris wheel.	1.395	0.126
1PF19	When in PE (gym class), I do the same activity as the other kids.	0.644	0.31
1PF53	I drive a car.	1.543	0.455
1PF41	A job means doing something to get paid. I have a job.	1.194	0.581

## Parent Report: Pediatric Measure of Participation

### **Parent Report: Participation Self**

For each question, think about what you think **your child wants to do** and choose one of the answers below that best describes your child:

- ◊ **My child doesn't do it because he/she can't:** Your child cannot do it because of his or her spinal cord injury or problems associated with the spinal cord injury.
- ◊ **My child doesn't do it because he/she doesn't want to:** Your child can do it, but decides not to do it.
- ◊ **My child does it a lot less than he/she wants:** Your child does it, but hardly ever.
- ◊ **My child does it a little less than he/she wants:** Your child does it sometimes but wants to do it more.
- ◊ **My child does it as much as he/she wants:** Your child does it as much as he/she wants.

<b>Item ID</b>	<b>Item</b>	<b>Slope</b>	<b>Difficulty</b>
PS36	My child goes to church or a place of worship.	0.694	-3.254
PS48	My child goes places with the family.	1.275	-3.088
PS18	My child sits with the class during school meetings, plays, or assemblies.	1.11	-2.804
PS6	When my child plays games with others, he/she follows the rules.	1.351	-2.759
PS44	When my child is at home, he/she plays board games.	0.881	-2.678
PS26	My child goes places such as the hairdresser or dentist.	1.403	-2.547
PS21	My child goes on school field trips with the class.	1.059	-2.069
PS17	My child eats with his/her friends in the school cafeteria.	1.401	-1.969
PS45	At home, my child does arts and crafts.	0.95	-1.934
PS20	At school, my child goes to recess or on the playground.	1.028	-1.822
PS9	My child's friends come to the house.	1.623	-1.609
PS43	My child's friends call him/her to talk on the phone.	1.708	-1.564
PS50	When my child is done playing, he/she cleans up.	1.338	-1.335
PS33	My child goes to theaters, concerts, and sporting events.	1.819	-1.246
PS58	My child hangs out outside with other kids.	2.115	-1.216
PS11	My child plays outside games with other kids.	1.285	-1.071
PS65	Other kids include my child in what they are doing.	1.444	-1.052
PS14	My child puts books in his/her book bag.	1.235	-1.024
PS55	My child dates.	1.192	-0.91
PS22	My child stays after school for activities.	1.197	-0.879
PS23	My child is on a school team or club.	0.936	-0.845
PS25	My child goes to his/her friend's parties.	2.047	-0.84
PS34	My child goes to the movies with the friends.	2.411	-0.785
PS37	My child goes out to eat with his/her friends.	2.988	-0.553
PS31	My child go to dances.	1.532	-0.506
PS27	My child goes to the mall with his/her friends.	2.487	-0.441
PS28	My child goes to the store with friends.	3.289	-0.405
PS29	My child plays or hangs out at his/her friend's house.	3.37	-0.321
PS30	My child eats dinner at his/her friend's house.	3.832	-0.263
PS40	My child serves him/herself at a salad bar or ice cream bar.	1.54	-0.254
PS10	My child is on a community team or club.	1.667	-0.216
PS56	My child takes lessons to learn a special talent like dance or music.	0.982	-0.202
PS60	My child goes to the arcade with friends.	2.674	-0.132
PS59	My child goes places in his/her friend's parent's car.	2.891	-0.12

PS16	My child makes his/her own breakfast.	1.249	-0.11
PS38	My child tries clothes on at the store.	1.658	-0.077
PS35	My child goes places in his/her friend's car.	3.172	-0.073
PS24	My child goes to a friend's house after school.	3.447	-0.041
PS32	My child sleeps over a friend's house.	2.912	0.167
PS39	My child goes on roller coasters or the Ferris wheel.	1.332	0.394
PS19	When in PE (gym class), my child does the same activity as the other kids.	0.788	0.578
PS53	My child drives a car.	1.499	0.817
PS41	A job means doing something to get paid. My child has a job.	1.062	1.291

### **Parent Report: Participation Friend**

For each question, think about **what your child does and what your child's friends do** and choose one of the answers below that best describes your child:

- ◊ **My child doesn't do it because he/she can't:** your child cannot do it because of his or her spinal cord injury or problems associated with the spinal cord injury.
- ◊ **My child doesn't do it because he/she doesn't want to:** Your child can do it, but decides not to do it.
- ◊ **My child does it a lot less than his/her friends:** Your child does it, but his/her friends do it a lot more.
- ◊ **My child does it a little less than his/her friends:** Your child does it but his/her friends do it a little more.
- ◊ **My child does it as much as his/her friends:** There is no difference between my child and his/her friends.

<b>Item ID</b>	<b>Item</b>	<b>Slope</b>	<b>Difficulty</b>
PF57	My child goes out to eat with the family.	1.211	-2.764
PF7	At home my child reads books or magazines.	0.866	-2.664
PF48	My child goes places with the family.	1.388	-2.532
PF26	My child goes places such as the hairdresser or dentist.	1.299	-2.418
PF18	My child sits with the class during school meetings, plays, or assemblies.	1.251	-2.371
PF8	My child does his/her homework.	1.197	-2.344
PF44	When my child is at home, he/she plays board games.	1.14	-2.143
PF17	My child eats with his/her friends in the school cafeteria.	1.166	-2.119
PF49	My child plays video games.	0.763	-1.993
PF15	Specials mean art, technology, physical education, and music. My child goes to specials with the class.	0.977	-1.948
PF1	At home, my child plays with toys.	1.937	-1.722
PF21	My child goes on school field trips with the class.	1.235	-1.681
PF43	My child's friends call him/her to talk on the phone.	1.512	-1.545
PF9	My child's friends come to the house.	1.702	-1.426
PF20	At school, my child goes to recess or on the playground.	1.111	-1.409
PF58	My child hangs out outside with other kids.	1.791	-1.105
PF50	When my child is done playing, he/she cleans up.	1.337	-1.02
PF33	My child goes to theaters, concerts, and sporting events.	1.98	-0.995
PF65	Other kids include my child in what they are doing.	1.647	-0.787
PF55	My child dates.	1.232	-0.716
PF23	My child is on a school team or club.	1.012	-0.658
PF14	My child puts books in the book bag.	1.577	-0.646
PF25	My child goes to friend's parties.	2.315	-0.636
PF34	My child goes to the movies with friends.	2.378	-0.634
PF11	My child plays outside games with other kids.	1.611	-0.631
PF22	My child stays after school for activities.	1.353	-0.581
PF37	My child goes out to eat with friends.	2.69	-0.494
PF27	My child goes to the mall with friends.	2.448	-0.392
PF28	My child goes to the store with friends.	2.795	-0.392
PF31	My child goes to dances.	1.768	-0.322
PF29	My child plays or hangs out at friend's house.	2.82	-0.263
PF30	My child eats dinner at a friend's house.	3.083	-0.191
PF56	My child takes lessons to learn a special talent like dance or music.	1.173	-0.162
PF10	My child is on a community team or club.	1.785	-0.125
PF52	After a bath or shower, my child puts the towels where they belong.	1.339	-0.109
PF35	My child goes places in a friend's car.	2.567	-0.09
PF16	My child makes his/her own breakfast.	1.311	-0.035
PF60	My child goes to the arcade with friends.	2.361	-0.019
PF59	My child goes places in a friend's parent's car.	2.433	0.01

PF24	My child goes to a friend's house after school.	2.974	0.059
PF38	My child tries clothes on at the store.	1.808	0.144
PF32	My child sleeps over a friend's house.	2.67	0.296
PF39	My child goes on roller coasters or the Ferris wheel.	1.408	0.45
PF19	When in PE (gym class), my child does the same activity as the other kids.	0.972	0.638
PF53	My child drive a car.	1.407	0.846
PF41	A job means doing something to get paid. My child has a job.	1.105	1.295