

# ITCH

## MEASURE DIFFERENCES

A brief guide to differences between the PROMIS® Itch instruments:

ADULT	PEDIATRIC	PARENT PROXY
PROMIS Item Bank v1.0 – Itch – Activity and Clothing	PROMIS Pediatric Bank v1.0 – Itch (PIQ-C)	PROMIS Parent Proxy Bank v1.0 – Itch
PROMIS Item Bank v1.0 – Itch – Interference	PROMIS Pediatric Bank v1.0 – Itch (PIQ-C) (screen-to-CAT)	PROMIS Parent Proxy Bank v1.0 – Itch (screen-to-CAT)
PROMIS Item Bank v1.0 – Itch – Mood and Sleep	PROMIS Pediatric Short Form v1.0 – Itch 6a (PIQ-C)	PROMIS Parent Proxy Short Form v1.0 – Itch 6a
PROMIS Item Pool v1.1 – Itch – Severity	PROMIS Pediatric Short Form v1.0 – Itch 8a (PIQ-C)	PROMIS Parent Proxy Short Form v1.0 – Itch 8a
PROMIS Checklist v1.0 – Itch – Quality	PROMIS Pediatric Short Form v1.0 – Itch 8b (PIQ-C)	PROMIS Parent Proxy Short Form v1.0 – Itch 8b
PROMIS Checklist v1.0 – Itch – Triggers		
PROMIS Scale v1.0 – Itch – Scratching Behavior 5a	PROMIS Pediatric Numeric Rating Scale v1.0 – Itch (PIQ-C) 3a	PROMIS Parent Proxy Numeric Rating Scale v1.0 – Itch 3a
PROMIS Short Form v1.0 – Itch – Activity and Clothing 4a		
PROMIS Short Form v1.0 – Itch – Interference 4a		
PROMIS Short Form v1.0 – Itch – Mood and Sleep 4a		
PROMIS Short Form v1.0 – Itch – Activity and Clothing 8a		
PROMIS Short Form v1.0 – Itch – Interference 8a		
PROMIS Short Form v1.0 – Itch – Mood and Sleep 8a		
PROMIS Item Pool v1.0 – Itch – Severity*		

\*Retired measure

PIQ-C = PROMIS Itch Questionnaire–Child

### ABOUT ITCH

Itch instruments are available for adults (ages 18+), pediatric self-report (ages 8-17) and for parents serving as proxy reporters for their child (youth ages 5-17).

The PROMIS Itch-Mood and Sleep item bank assesses mood and sleep-related quality of life impairment from itch (pruritus) in adults (18+). The PROMIS Itch-Mood and Sleep item bank is universal rather than disease-specific. It assesses the impact of itch over the past 7 days and includes 18 items.

The PROMIS Itch-Activity and Clothing item bank assesses activity- and clothing-related quality of life impairment from itch (pruritus) in adults (18+). The PROMIS Itch-Activity and Clothing item bank is universal rather than disease-specific. It assesses the impact of itch over the past 7 days and includes 15 items.

The PROMIS Itch-Interference item bank assesses general issues related to quality of life impairment from itch (pruritus) in adults (18+). The PROMIS Itch-Interference item bank is universal rather than disease-specific. It assesses the impact of itch over the past 7 days and includes 25 items.



The PROMIS Itch-Scratching Behavior scale assesses quality of life impairment from scratching behavior and the physical manifestations of itch (pruritis) in adults (18+). The PROMIS Itch-Scratching Behavior scale is universal rather than disease-specific. It assesses the impact of itch over the past 7 days and includes 5 items.

The PROMIS Itch-Quality Checklist assesses the subjective description of the sensation of itch with a 16-item checklist. Respondents can select as many as apply. There is no summary score.

The PROMIS Itch-Severity Item Pool assesses the characteristics of itch, including intensity, frequency and time of occurrence. The PROMIS Itch-Severity measure is universal rather than disease-specific. It includes 8 items, each individually scored. There is currently no summary score.

The PROMIS Itch-Triggers Checklist assesses the subjective description of the triggers of itch with a 13-item checklist. Respondents can select as many as apply. There is no summary score.

The PROMIS Pediatric Bank v1.0 – Itch (PIQ-C) assesses itch symptoms and its impacts to children's daily living (ages 8-17). The PIQ-C includes items for children with skin conditions. It assesses the symptoms and impacts of pruritus over the past week. It includes 45 items.

The PROMIS Pediatric Numeric Rating Scale v1.0 – Itch (PIQ-C) 3a assesses severity of itch reported by the child using a 0-10 rating scale. It includes 3 items. There is no summary score.

The PROMIS Parent Proxy Bank v1.0 – Itch assesses parents' perception of itch symptoms and its impacts to their child's (ages 5-17) daily living. The PROMIS Parent Proxy Bank v1.0 – Itch includes items for parents' perception of their children with skin conditions. It assesses the symptoms and impacts of pruritus over the past week. It includes 45 items.

The PROMIS Parent Proxy Numeric Rating Scale v1.0 – Itch 3a assesses severity of itch reported by parents using a 0-10 rating scale. It includes 3 items. There is no summary score.

## **INTRODUCTION TO ADMINISTRATION OPTIONS**

There are two administration options for assessing Itch: short forms and a computer adaptive test (CAT). When administering a short form, instruct participants to answer all of the items (i.e., questions or statements) presented. With CAT, participant responses guide the system's choice of subsequent items from the full item bank (see description section above for number of items for each measure). Although items differ across respondents taking a CAT, scores are comparable across participants.

Some administrators may prefer to ask the same question of all respondents or of the same respondent over time, to enable comparability on specific content across people or over time. In these cases, or when paper administration is preferred, a short form would be more desirable than CAT. This guide provides information on all Itch short form and CAT instruments.

CAT: A minimum number of items (e.g., 4) must be answered in order to receive a score for the Itch CAT. The response to the first item will guide the system's choice of the next item for the participant. The participant's response to the second item will dictate the selection of the following question, and so on. As additional items are administered, the measurement error is reduced and precision of the respondent's score increases. CAT will continue until either the standard error drops below a specified level (e.g., standard error < 3.0 [on the T-score metric]), or the participant has answered the maximum number of questions (e.g., 8), whichever occurs first. For



some CATs, specifically “recommended” and “screen-to-CAT” there are additional stopping rules. These include stopping when the standard error isn’t improving much (e.g., is not reduce by 0.1 at T-score metric) or if a respondent is asymptomatic. For details on the exact stopping rules for Itch CATs, see below.

CAT versus Short Form: Whether one uses a short form or a CAT, the score metric is derived from Item Response Theory (IRT), a family of statistical models that link individual questions to a presumed underlying trait or concept of itch represented by all items in the item bank. When choosing between a CAT and a short form, it is useful to consider the demands of computer-based assessment, and the psychological, physical, and cognitive burden placed on respondents as a result of the number of questions asked.

## VERSION DIFFERENCES

Some PROMIS domains have multiple versions of instruments (i.e., v1.0, v1.1, v2.0). Generally, **it is recommended that you use the most recent version available which can be identified as the instrument with the highest version number.** In most cases, an instrument that has a decimal increase (v1.0 to v1.1) retains the same item-level parameters as well as instrument reliability and validity. In cases where a version number increases by a whole number (e.g., v1.0 to v2.0), the changes to the instrument are more substantial.

### Adult

There are two versions (v1.0 and v1.1) of the PROMIS Itch-Severity Item Pool. The PROMIS Item Pool v1.0 – Itch-Severity contained two items (Item IDs PIQSeverity06 and PIQSeverity07), in which the Item Context (i.e., “In the past 7 days...”) contradicted the timeframe mentioned in the corresponding Item Stems (i.e., “...right now?”). In the second version of this instrument (PROMIS Item Pool v1.1 – Itch-Severity), the Item Contexts for Items PIQSeverity06 and PIQSeverity07 were removed to ensure timeframe consistency. Item pools do not produce summary scores. However, you can compare raw response scores from items in the v1.0 Pool with items from the v1.1 Pool with the exception of items PIQSeverity06/PIQSeverity06r and PIQSeverity07/PIQSeverity07r.

### Pediatric and Parent Proxy

**Standard (Recommended) and Screen-to-CAT Stopping Rules:** The standard (recommended) and screen-to-CAT pediatric and parent proxy Itch computer adaptive tests are based on the exact same item banks and utilize different stopping rules. The Standard CAT stopping rules are:

- Minimum number of items administered = 4
- Stop when one of these occurs:
  - 8 items are administered OR
  - Standard error is below 0.3 on the theta metric (3.0 on the T-score metric)

Screen-to-CAT measures prioritize minimizing the burden on patients to answer items. They are a good fit when accurate assessment of healthy respondents is not important. These CATs will be very short (e.g., 1 or 2 items per bank) for healthy respondents and will not produce very precise scores for them. This is helpful when the reason a CAT is administered is a) to identify if a patient is experiencing symptoms or impairment and b) to quantify the level of severity for those symptomatic individuals.

For Pediatric and Parent Proxy Itch measures, the Screen-to-CAT stopping rules are:

- If the responses to the first 2 items are the “healthiest” responses, then stop.
- If the responses to the first 2 items are NOT the “healthiest” responses, proceed with the Standard CAT stopping rules listed above.

## SHORT FORM DIFFERENCES

### Adult Short Forms

There are 6 adult short forms drawn from item banks, and one 5-item calibrated scale for scratching behavior. For the short forms, items were selected based on content and psychometric characteristics. In each of the three adult domains (Activity and Clothing, Interference, Mood and Sleep), the 4-item short form is a nested subset of the 8-item short form. That is, all items in a 4-item short form are included in the 8-item short form.

### Pediatric and Parent Proxy

There are three pediatric short forms derived from the PROMIS Pediatric Bank v1.0 – Itch (PIQ-C): 6a, 8a, and 8b. The short forms vary in how the items were selected. PROMIS Pediatric SF v1.0 – Itch 6a includes items that are parallel to the adult version. PROMIS Pediatric SF v1.0 – Itch 8a consists of items deemed important by clinicians. PROMIS Pediatric SF v1.0 – Itch 8b includes items spanning the itch measurement continuum.

There are three Parent Proxy short forms: 6a, 8a, and 8b. Each short form is parallel to the Pediatric version.

## SCORES

For the PROMIS Itch instruments, a score of 50 is the average score for people in the United States general population who have recently experienced itch for any reason. The standard deviation around this mean of 50 is 10 T-score units. You can read more about the calibration and centering samples on HealthMeasures.net (<http://www.healthmeasures.net/score-and-interpret/interpret-scores/promis>). The T-score is provided with an error term (Standard Error or SE). The Standard Error is a statistical measure of variance and represents the “margin of error” for the T-score.

**Important:** A higher PROMIS T-score represents more of the concept being measured. For negatively-worded concepts like Itch, a T-score of 60 is one SD worse than average. By comparison, an Itch T-score of 40 is one SD better than average.

## STATISTICAL CHARACTERISTICS

There are four key features of the score for Itch:

- **Reliability:** The degree to which a measure is free of error. It can be estimated by the internal consistency of the responses to the measure, or by correlating total scores on the measure from two time points when there has been no true change in what is being measured (for z-scores, reliability =  $1 - SE^2$ ).
- **Precision:** The consistency of the estimated score (reciprocal of error variance).
- **Information:** The precision of an item or multiple items at different levels of the underlying continuum (for z-scores, information =  $1/SE^2$ ).
- **Standard Error (SE):** The possible range of the actual final score based upon the scaled T-score. For example, with a T-score of 52 and a SE of 2, the 95% confidence interval around the actual final score ranges from 48.1 to 55.9 ( $T\text{-score} \pm (1.96 * SE) = 52 \pm 3.9 = 48.1 \text{ to } 55.9$ ).

The final score is represented by the T-score, a standardized score with a mean of 50 and a standard deviation (SD) of 10.

More information is available at [HealthMeasures.net](http://www.healthmeasures.net).

## PREVIEW OF SAMPLE ITEM

Figure 1 is an excerpt from the paper version of the Adult Itch – Activity and Clothing 4-item short form. This is the paper version format used for all Itch instruments. It is important to note, CAT is not available for paper administration.

In the past 7 days...		Never	Rarely	Sometimes	Often	Almost always
PIQActivCloth31	because of itch, my physical activities were limited. ....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PIQActivCloth20	because of itch, it was hard to do activities that made me sweat.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

Figure 1

## FREQUENTLY ASKED QUESTIONS (FAQs)

Q: I am interested in learning more. Where can I do that?

The best place to start is the HealthMeasures website at [www.healthmeasures.net](http://www.healthmeasures.net). The site contains a wealth of educational information and citations for further reading.

Q: Are these instruments available in other languages?

Yes! Look at the HealthMeasures website (<http://www.healthmeasures.net/explore-measurement-systems/promis/intro-to-promis/available-translations>) for current information on PROMIS translations.

Q: Can I make my own short form?

Yes, custom short forms can be made by selecting any items from an item bank. This can be scored using the Scoring Service ([https://www.assessmentcenter.net/ac\\_scoringservice](https://www.assessmentcenter.net/ac_scoringservice)).