An Introduction to PROMIS®

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HealthMeasures

Neuro-QoL   ASCQ-Me®   PROMIS   NIH TOOLBOX

What is PROMIS®?

Patient-Reported Outcomes Measurement Information System®

- Over 300 measures used to evaluate and monitor physical, mental, and social health in adults and children

- Relevant across all conditions
  - General population
  - Chronic conditions

- Developed and evaluated using state-of-the science psychometric methods

- Scores on one metric

- Translations available in Spanish and 42 other languages

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Essential Components of PROMIS

DOMAIN

The feeling, function, or perception you wish to measure

Cuts across different diseases and settings. E.g., physical function, depressive symptoms

ITEM BANK

Collection of items that each measure the same domain

Used to create different measure types, all producing a score on the same metric

PROMIS Measure Types

SHORT FORMS

- Subsets of item banks

- Focused on a single domain

- Off-the-shelf or custom

- Usually 4-10 items
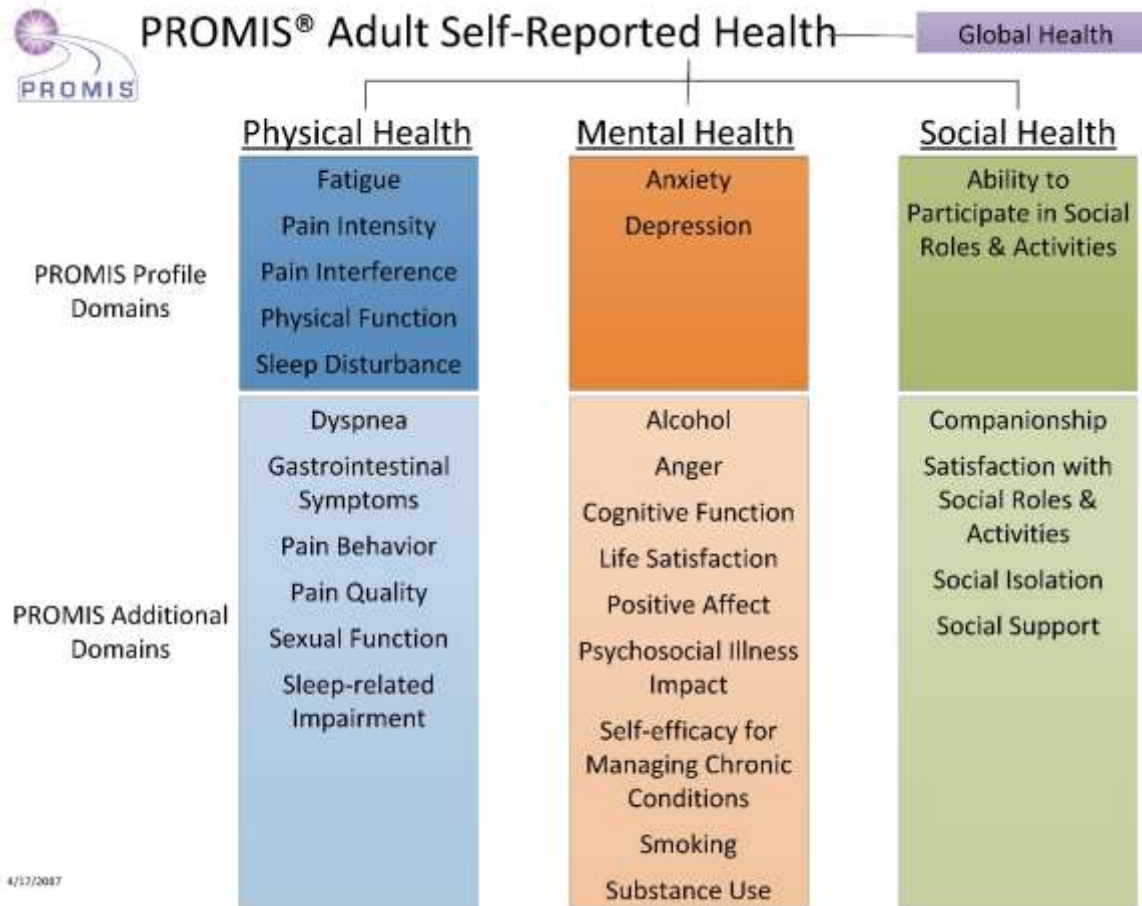
COMPUTER ADAPTIVE TESTS (CATs)

- Individually tailored electronic questionnaires

- Focused on a single domain

- Next item administered from item bank depends on previous answers

- Usually 4-12 items

PROFILES

- Collection of short forms covering multiple domains (e.g. depression, physical function, pain interference)

- Adult profiles (29, 43, and 57 item versions), Pediatric and Parent-Proxy profiles (25, 37, 49 item versions)
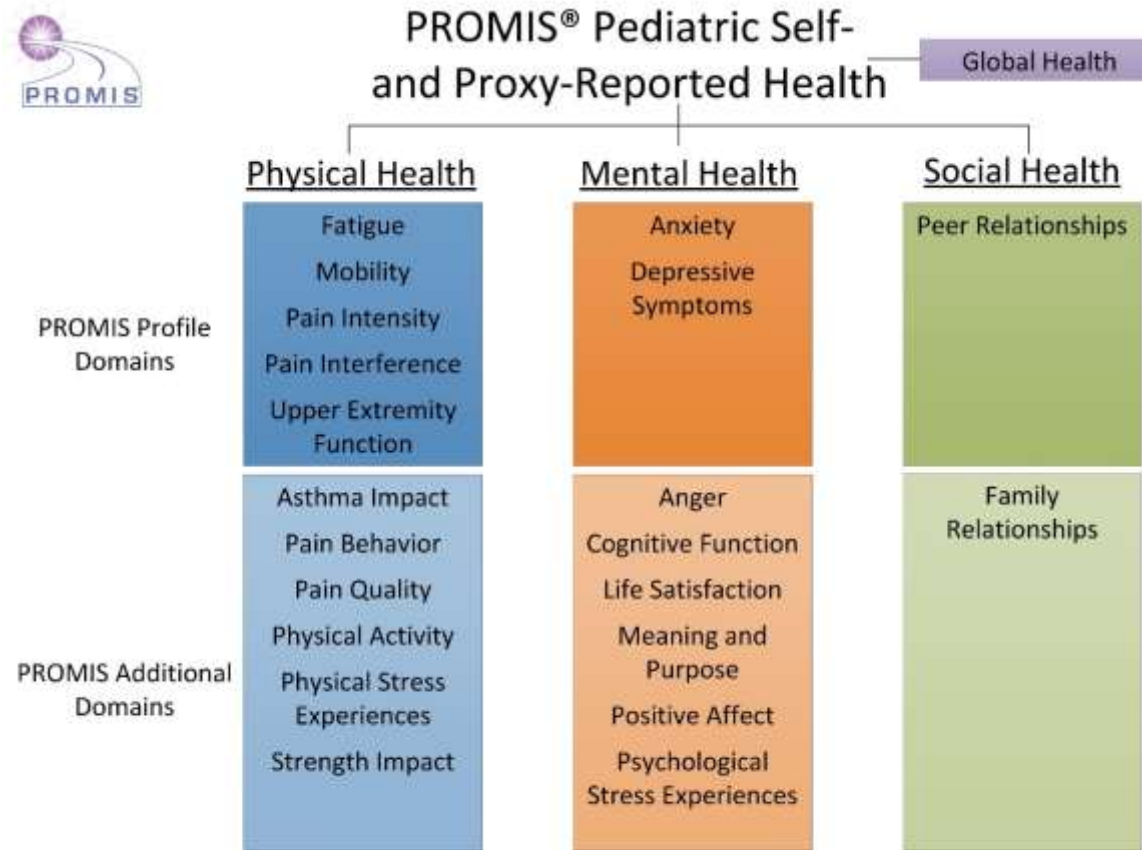
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Domains for Adult Assessment

PROMIS® Adult Self-Reported Health — Global Health

	Physical Health	Mental Health	Social Health
PROMIS Profile Domains	Fatigue Pain Intensity Pain Interference Physical Function Sleep Disturbance	Anxiety Depression	Ability to Participate in Social Roles & Activities
PROMIS Additional Domains	Dyspnea Gastrointestinal Symptoms Pain Behavior Pain Quality Sexual Function Sleep-related Impairment	Alcohol Anger Cognitive Function Life Satisfaction Positive Affect Psychosocial Illness Impact Self-efficacy for Managing Chronic Conditions Smoking Substance Use	Companionship Satisfaction with Social Roles & Activities Social Isolation Social Support

4/17/2017

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Domains for Pediatric Assessment

PROMIS® Pediatric Self- and Proxy-Reported Health

Global Health

Physical Health	Mental Health	Social Health
PROMIS Profile Domains		
Fatigue	Anxiety	Peer Relationships
Mobility	Depressive Symptoms	
Pain Intensity		
Pain Interference		
Upper Extremity Function		
PROMIS Additional Domains		
Asthma Impact	Anger	Family Relationships
Pain Behavior	Cognitive Function	
Pain Quality	Life Satisfaction	
Physical Activity	Meaning and Purpose	
Physical Stress Experiences	Positive Affect	
Strength Impact	Psychological Stress Experiences	

1/12/2017

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Computerized Adaptive Testing (CAT)

- PROMIS measures were developed using item response theory, which estimates parameters for each PRO question: how related is it to the domain being measured & "where" does it measure best?

- As a result, item banks were developed which can be used with CAT algorithms to tailor questions to how a person is feeling and functioning

- Advantages:
  - Brief - 4-12 items; can be completed in under a minute
  - Precise - Low error
  - Tailored content - CATs don't ask questions that aren't relevant to the respondent
  - Cover a wide range of function or symptoms

In the past 7 days

How often did you have to push yourself to get things done because of your fatigue?

○ Never

○ Rarely

● Sometimes

○ Often

○ Always

Previous	Next		Exit

https://www.assessmentcenter.net/ac1/Assessments/CATDemo

During the past 7 days:

I have trouble _starting_ things because I am tired

○ Not at all

○ A little bit

○ Somewhat

◉ Quite a bit

○ Very much

Previous	Next		Exit

https://www.assessmentcenter.net/ac1/Assessments/CATDemo

In the past 7 days

How run-down did you feel on average?

○ Not at all

○ A little bit

○ Somewhat

◉ Quite a bit

○ Very much

Previous	Next		Exit

https://www.assessmentcenter.net/ac1/Assessments/CATDemo

In the past 7 days

How much were you bothered by your fatigue on average?

○ Not at all

◉ A little bit

○ Somewhat

○ Quite a bit

○ Very much

Previous	Next		Exit

https://www.assessmentcenter.net/ac1/Assessments/CATDemo

Your score on the Fatigue CAT is 59. The average score is 50.

Your score indicates that your level of Fatigue is higher (worse) than:

- 80 percent of people in the general population

- 75 percent of people age 35-45

- 76 percent of females

https://www.assessmentcenter.net/ac1/Assessments/CATDemo
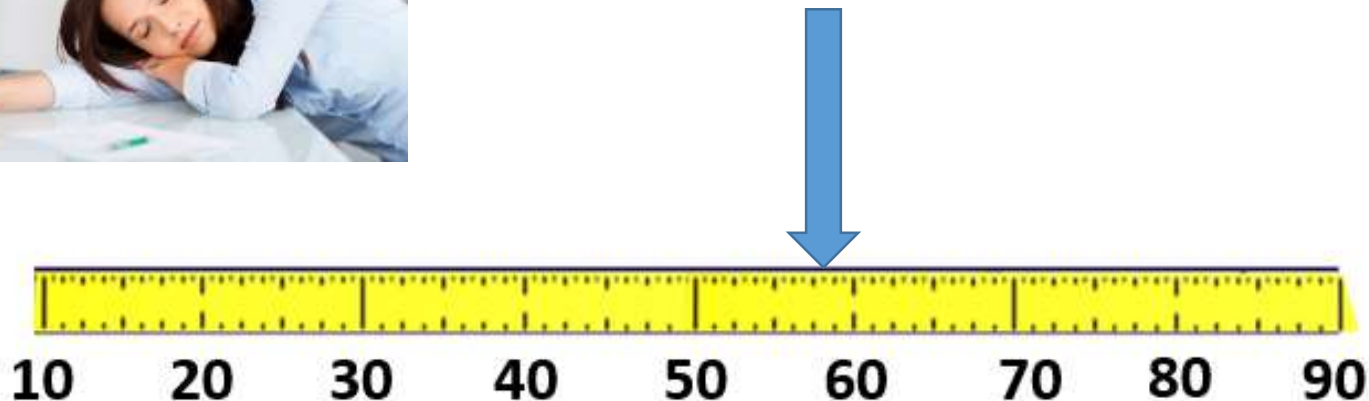
Administration & Data Collection

Using Paper

- Respondent-ready PDFs for short forms & profiles on HealthMeasures.net
- Minimal technology needed; staff time required for data entry and scoring

Using a Computer

- Required for administration of CATs
- PROMIS measures available in REDCap, Epic, Assessment Center[SM] and OBERD (Outcomes Based Electronic Research Database)
- For a custom solution, the Assessment Center API integrates into your data collection system to administer CATs and fixed forms, both with automatic IRT-based scoring

Using the PROMIS iPad App

- Enables on-demand assessments. An administrator can select any PROMIS measure and hand the iPad over to a respondent for completion
- Available in the iTunes Store

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PROMIS SCORING OPTIONS

HealthMeasures Scoring Service

- Free, web-based application

- Upload Excel file w/ raw responses to short form or profile items

- Receive scored file by email

- Most accurate and preferred method for calculating scores

Automatic Scoring via Data Collection Tool

- Our data collection tools, including the API, REDCap, Epic, and Assessment Center, automatically score responses & deliver results

- Most accurate and preferred method for calculating scores

By Hand

- Scoring Manuals provide details and instructions for scoring individual PROMIS measures

- Accessed using the Search & View Measures feature and Calculate Scores page on HealthMeasures.net

- Less accurate and a challenge for missing data

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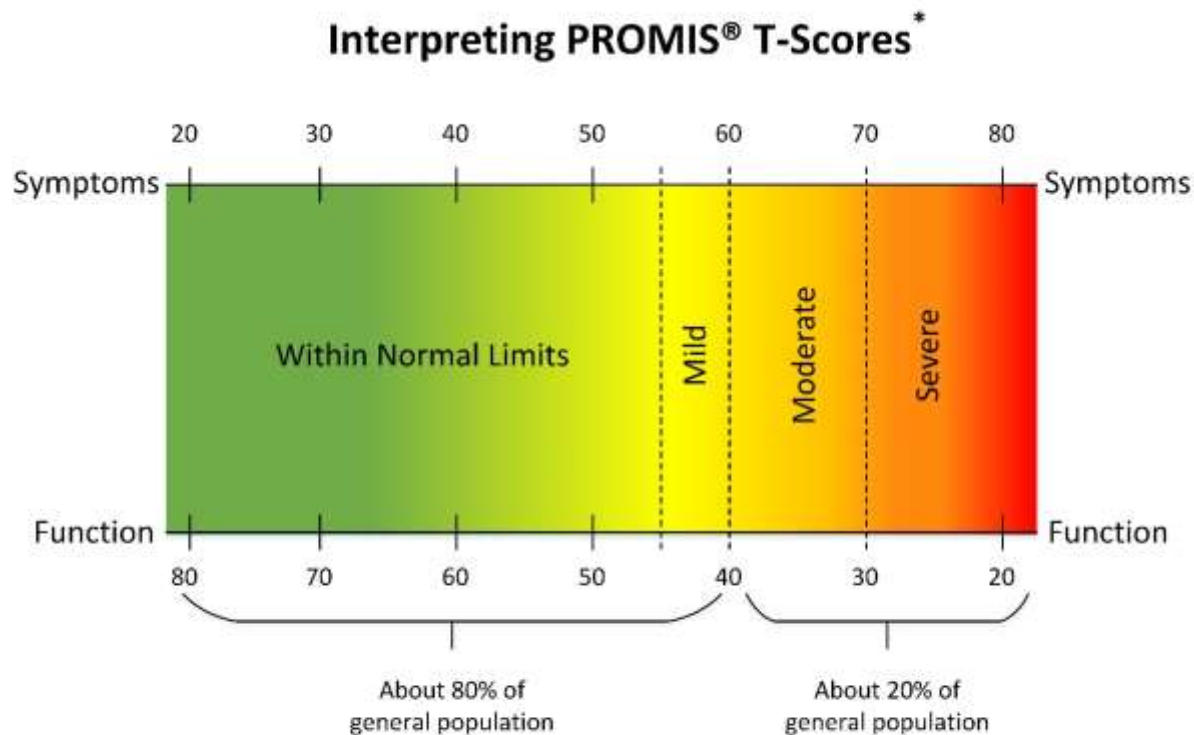TRANSFORMING HOW HEALTH IS MEASURED

Understanding PROMIS Scores

- PROMIS measures use a T-score metric
  - 50 is the mean for a relevant reference population
  - 10 is the standard deviation (SD) of that population

- Meaning of the score is defined by how it compares to the scores of others in a reference population

- High scores equal more of the domain being measured (e.g., more fatigue, more physical function)

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PROMIS Score Ranges

Interpreting PROMIS® T-Scores[*]

	20	30	40	50	60	70	80	
Symptoms								Symptoms

Within Normal Limits | Mild | Moderate | Severe

	80	70	60	50	40	30	20	
Function								Function

About 80% of
general population

About 20% of
general population

*These are general guidelines to aid in interpreting PROMIS® T-scores.
Within a given condition or PROMIS domain, thresholds may differ.
Different thresholds are used for pediatric and parent proxy Anger, Anxiety, Asthma Impact,
Depressive Symptoms, Fatigue, Pain Behavior, Pain Interference, Pain Quality, as well as
adult, pediatric, and parent proxy Global.

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Linking Measures
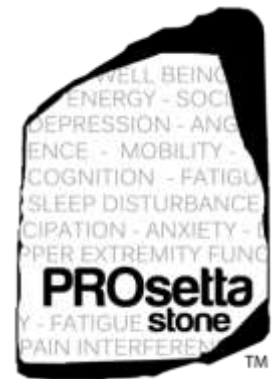
- Converts score from one measure to PROMIS metric

- Enables comparisons when different measures used

- www.prosettastone.org

SF-36/PF Score	PROMIS T-score	SE
10	24.5	4.0
11	28.3	2.8
12	30.3	2.5
13	32.0	2.2
14	33.4	2.1
15	34.8	2.0
16	36.0	2.0
17	37.2	2.0
18	38.4	1.9
19	39.5	1.9
20	40.7	1.9
21	41.8	1.9
22	42.9	1.9
23	44.1	2.0
24	45.3	2.0

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Support of PROMIS

- PCORI has awarded over <u>$30 million </u>to studies using PROMIS

- Over <u>100 NIH grants </u>using PROMIS

- Over <u>700 clinical trials </u>currently in progress using PROMIS

- The American Academy of Orthopaedic Surgeons recommends PROMIS for collection of Orthopaedic Quality Data

- The Mayo Clinic recommends and uses the PROMIS Global Health scale as a PRO for Quality of Care Assessment

- The FDA's Clinical Outcome Assessment Compendium, a resource to foster patient-focused drug development, includes PROMIS Physical Function in sarcopenia and oncology

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PROMIS API Users

- Epic PROMIS application in App Orchard
  - Score interpretation and data visualizations, full native integration into Epic and MyChart
  - 35 Hospital systems have licensed in last 18 months
- Non-profit research (NIH, National Marrow Donor Program, etc.)
- 20 hospital systems with custom API integrations
  - ~1 million annual administrations per hospital
  - ~80% completion rates
- 30 vendors
- PASTOR, screening tool and outcomes registry for beneficiaries enrolled in the military health care system

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PROMIS has stimulated me to have more in-depth conversations with my patients. The tool is _helping me become a better doctor_. I also find that I am ordering more OT consults. I believe it is improving the care of the whole child. – Dr. Mielke, Twin Cities

PROMIS results give me a good idea of how a patient is doing before I enter the room. I have noticed that adolescents are more willing to tell an iPad that they are struggling with peer relationships than to volunteer this information in response to in-person questioning. PROMIS has helped me _uncover issues that I would have otherwise missed_.
-Dr. Luhmann, St. Louis

PROMIS scores are tracking with things that you and I are familiar with...over time, patients getting better on therapies that we would expect them to. I think this is additional validation – not just from the National Institutes of Health and a decade of research by lots of different groups, but in our own field – that _these actually correlate with disease activity_ and that when you start an effective therapy they're going to improve as you would anticipate.
-Dr. Curtis, Birmingham

What has come across as most powerful so far is that _patients seem to be very grateful_ that someone is actually addressing these topics and is going to the lengths to try to help them as a whole person.
– Dr. Bridge, Newberg OR

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PROMIS in Medical Education/Certification

- Demonstrate medical expertise by measuring outcomes that matter most to patients
  - Obtain additional information for patient care
  - Use to meet quality measurement demands (bundled payments, PQRS, PRO-PMs)
  - Use for benchmarking among clinicians
- Implement in Certification or Maintenance of Certification

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