DUTCH-FLEMISH PROMIS

The value of PROMIS for physiotherapy practice

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PROMIS®
Dynamic Tools to Measure Health Outcomes from the Patient Perspective

Patient-Reported Outcomes

A Patient-Reported Outcome (PRO) is any report of the status of a patient's health condition that comes directly from the patient, without interpretation of the patient's response by a clinician or anyone else (FDA) → symptoms, functional status, health-related quality of life (not clinical outcomes, not experiences and measures of satisfaction (PREMs))

Patient-Reported Outcome Measures (PROMs) are questionnaires used to measure PROs.

Use of PROMs in clinical practice

- Using PROMs can be used for screening of relevant problems
- PROMs can be used for standardized outcome measurement
- PROMs can facilitate shared decision making
- PROMs can be used for self-monitoring
- Group level outcomes can be used to evaluate (and improve) quality of care
- Group level outcomes can be used to inform patients about expected outcomes

Challenges with PROMs

There is an increasing number of people with multiple chronic conditions

- Patients cannot attribute their symptoms and functional problems to one disease
- It is a burden for patients to complete multiple PROMs for different health care professionals

Many patients do not have a specific diagnosis and cannot complete a disease-specific PROM

For many patient groups (e.g. rare diseases) disease-specific PROMs do not exist

It is a burden for health care professionals to use different PROMs for different patients

Challenges with PROMs

- Questionnaires are often considered too long
- All patients need to complete the same questions at all times, but not all questions are relevant for all patients (or not at all times)
- Scores are difficult to interprete because of the ordinal nature of most scales
- Scores are incomparable across different PROMs because each PROMS has its own scale (metric)
- Quality of PROMs is not always good (enough) or this is not known

Solution

Computerized Adaptive Testing (CAT), using Item Response Theory (IRT) - based generic instruments

PROMIS is the larges example of such a measurement system

What is PROMIS?

Patient-**R**eported **O**utcomes **M**easurement **I**nformation **S**ystem (PROMIS) is a valid and reliable measurement system...

1. Consisting of item banks measuring generic outcomes
2. Developed using IRT…
3. That can be used to measure patient-reported outcomes very efficiently (using Computerized Adaptive Testing (CAT)) …
4. In adults and children with or without different diseases

www.healthmeasures.net/promis

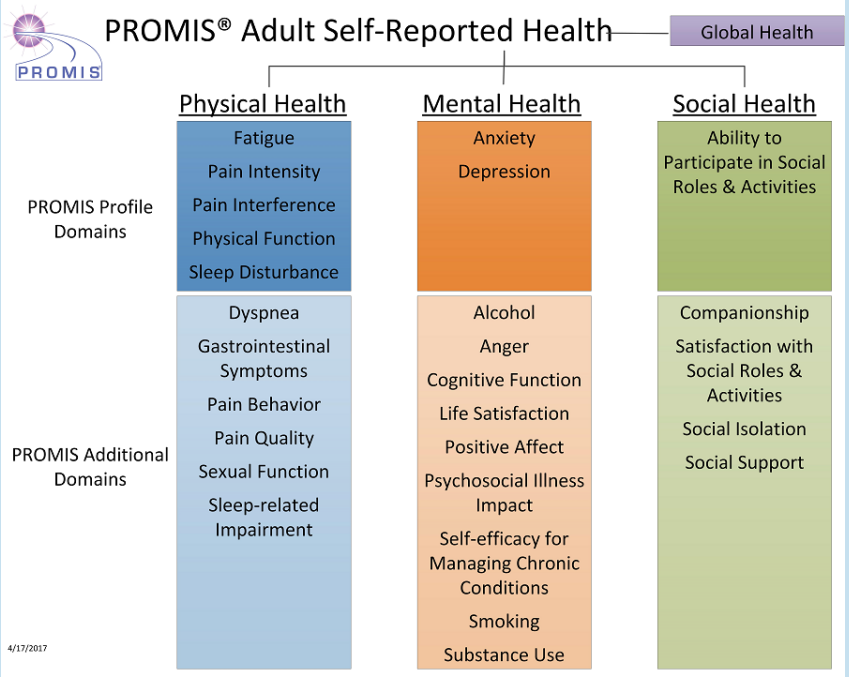
Item banks

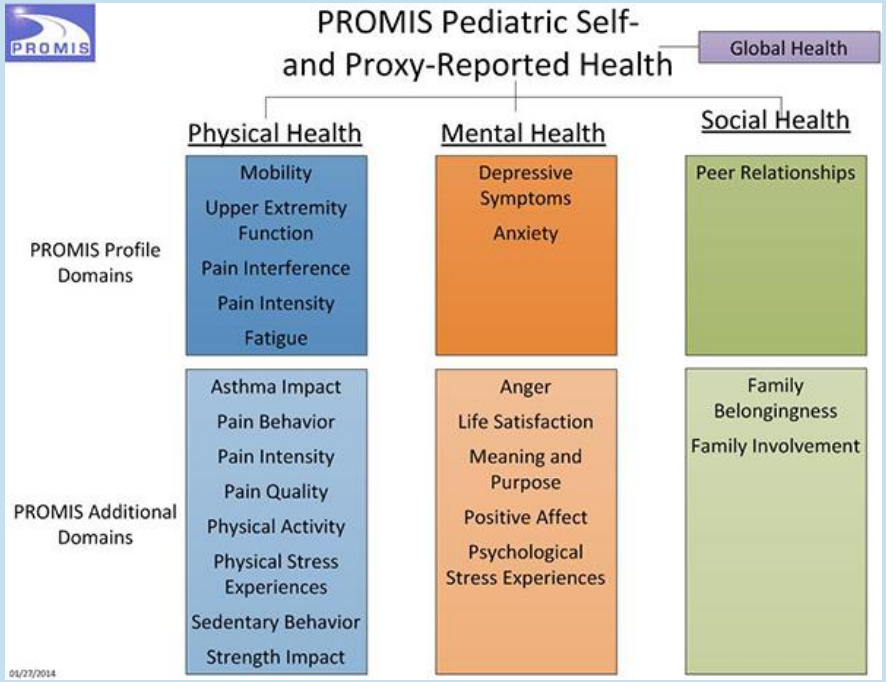
An item bank is a large set of questions (items) measuring a single constuct

Examples: physical function, depression, fatigue

PROMIS conceptual model

The PROMIS conceptual model includes the most relevant aspects of health for many (disease) populations





Item banks are developed based on IRT

Item Response Theory (IRT) is a ‘modern’ psychometric theory of PROM development.

With IRT items are ordered in an item bank according to their ‘difficulty’ (‘item location’)

This enables Computerized Adapative Testing (CAT)

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Example IRT item bank

0 50 100

Physical Functioning Item Bank

Item 1 | Item 2 | Item 3 | Item 4 | Item 5 | Item 6 | Item 7 | Item 8 | Item 9 | Item *n*

Are you able to get in and out of bed?
Are you able to stand without losing your balance for 1 minute?
Are you able to walk from one room to another?
Are you able to walk a block on flat ground?
Are you able to run or jog for two miles?
Are you able to run five miles?

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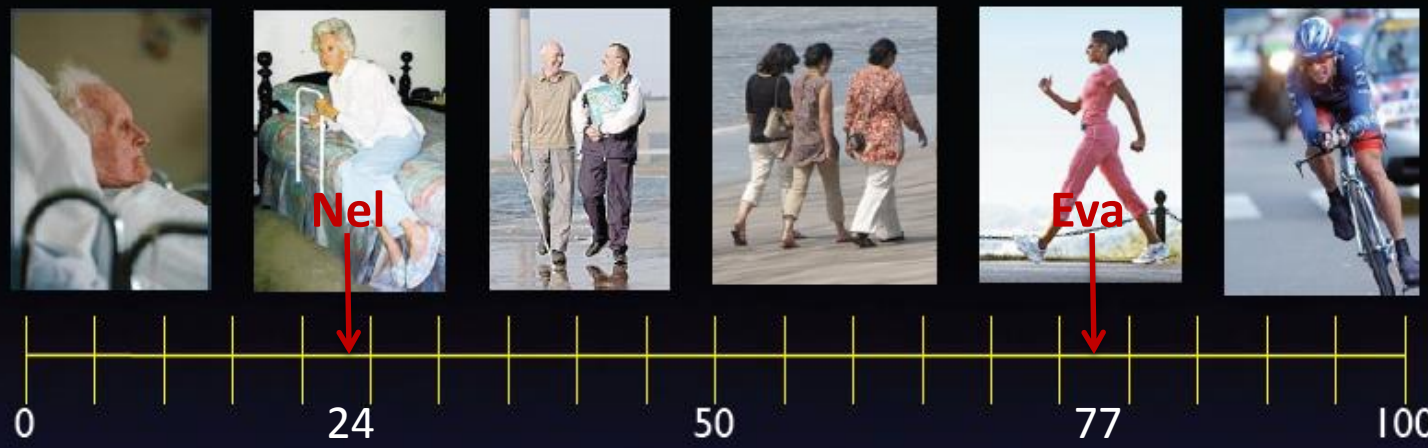
Example IRT item bank



Physical Functioning Item Bank

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Are you able to run five miles?

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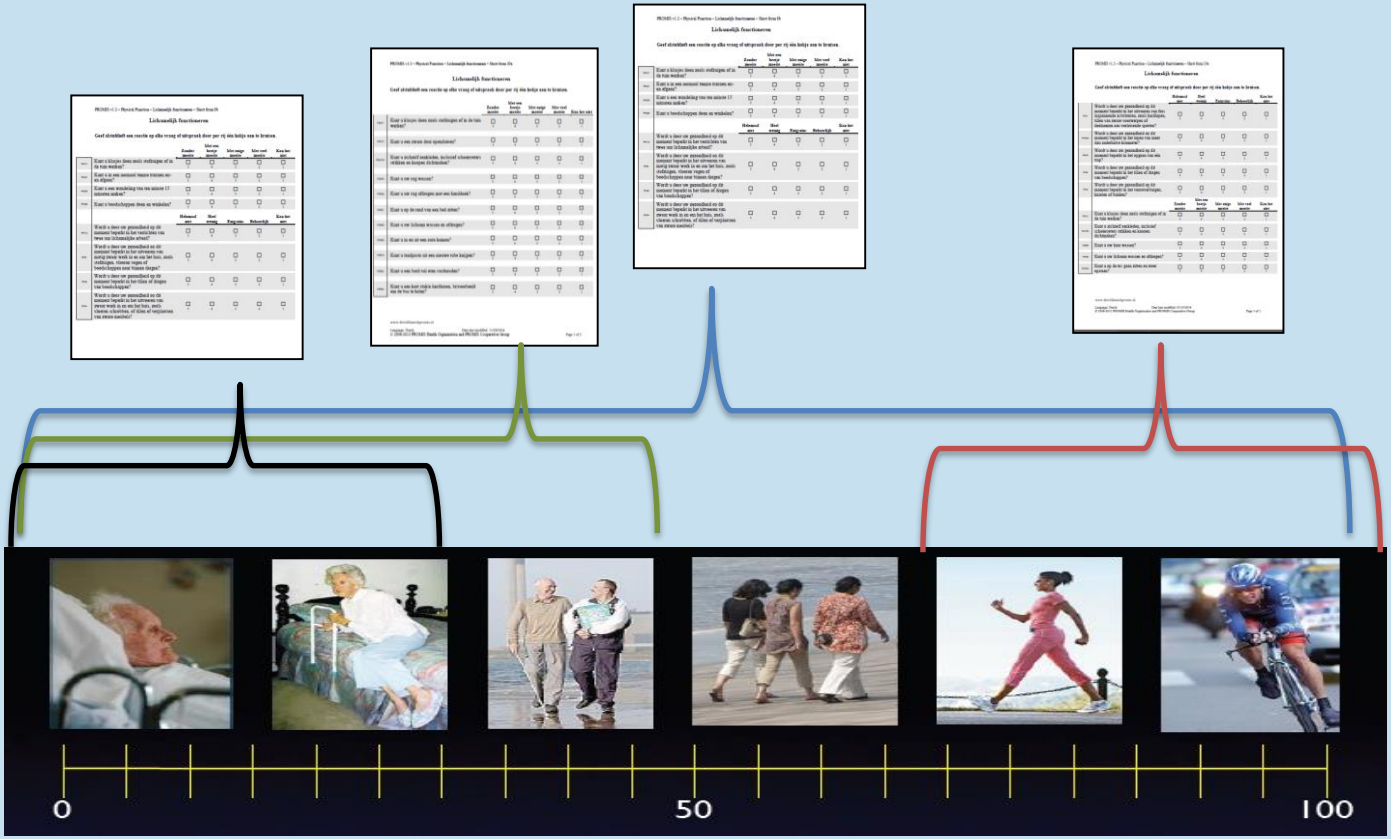
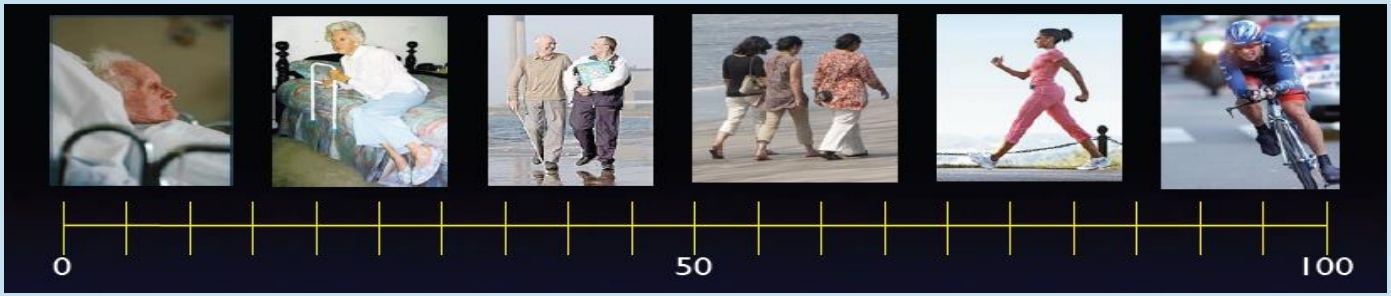
Items can be selected as short forms



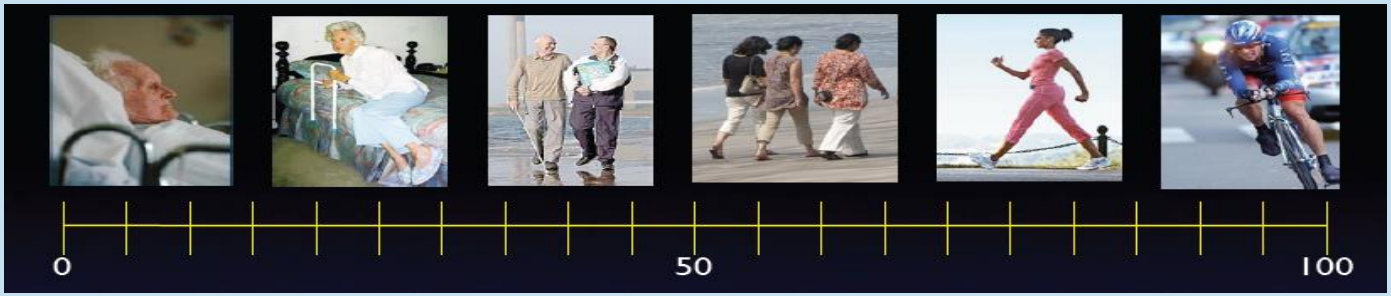
Computerized Adaptive Testing (CAT)

Are you able to walk at a normal speed?



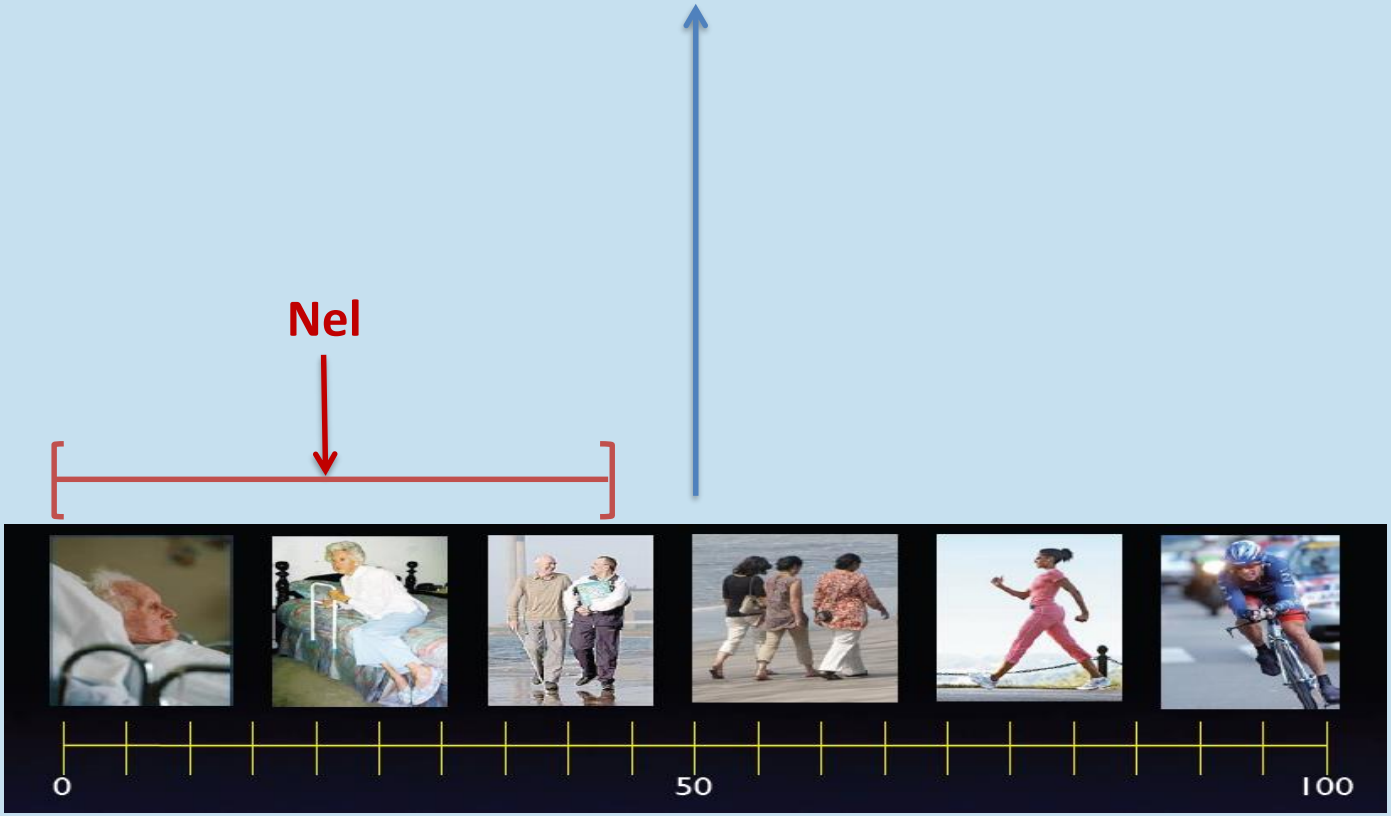
Computerized Adaptive Testing (CAT)

Are you able to walk at a normal speed? NO



Computerized Adaptive Testing (CAT)

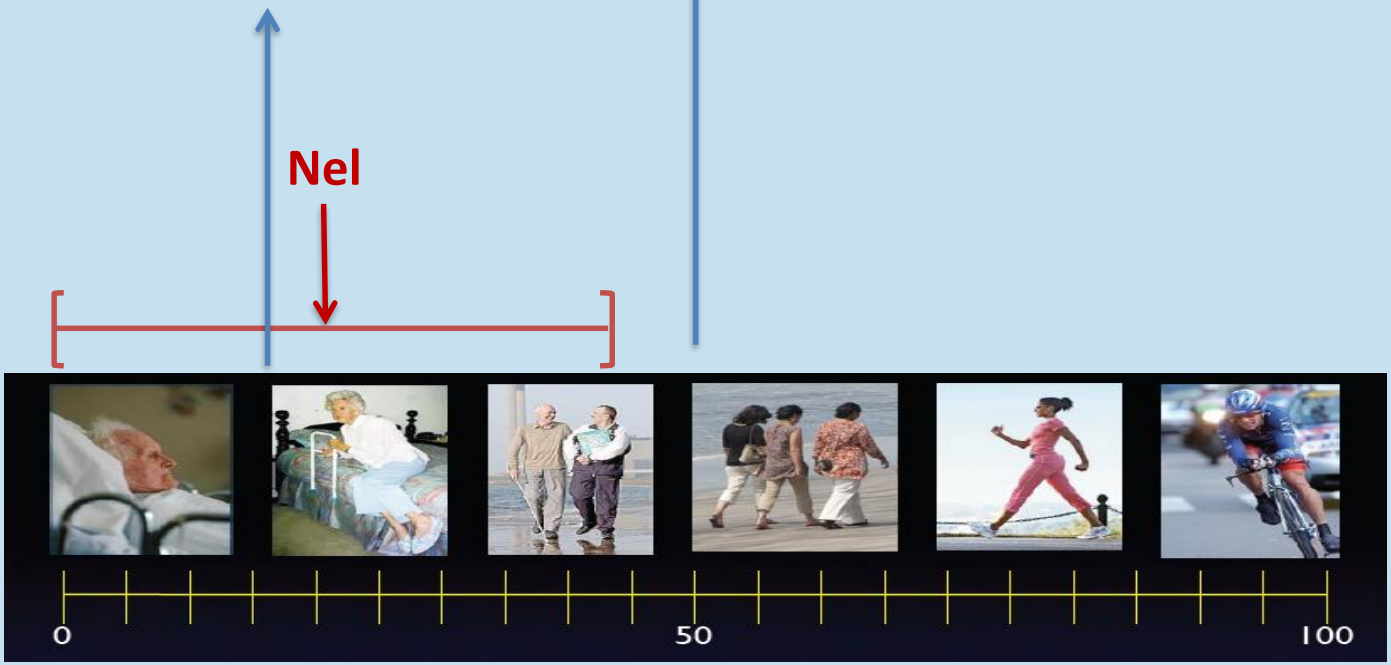
Are you able to walk at a normal speed? NO



Computerized Adaptive Testing (CAT)

Are you able to walk at a normal speed? NO

Are you able to move a chair from one room to another?.....



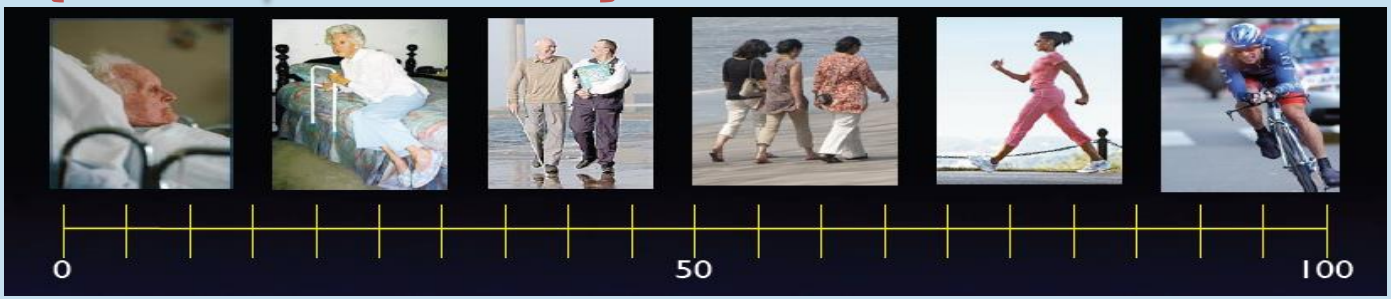
Computerized Adaptive Testing (CAT)

Are you able to walk at a normal speed? NO

YES

Are you able to move a chair from one room to another?.....

Nel



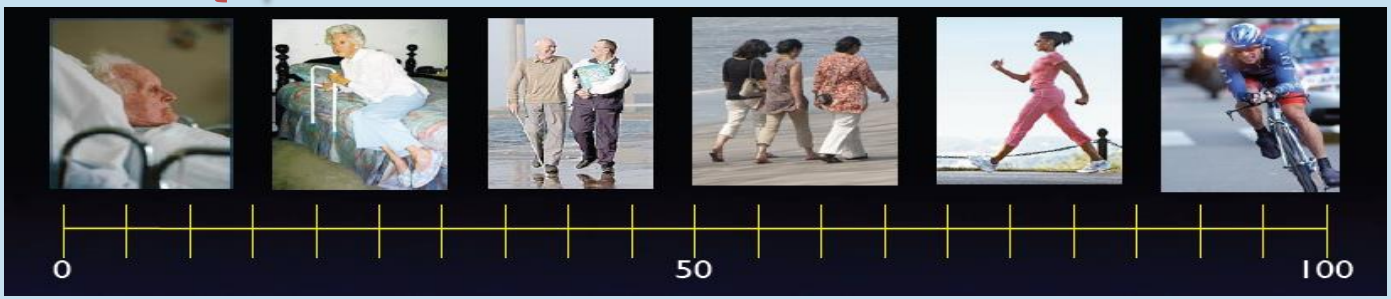
Computerized Adaptive Testing (CAT)

Are you able to walk at a normal speed? NO

YES

Are you able to move a chair from one room to another?.....

Nel



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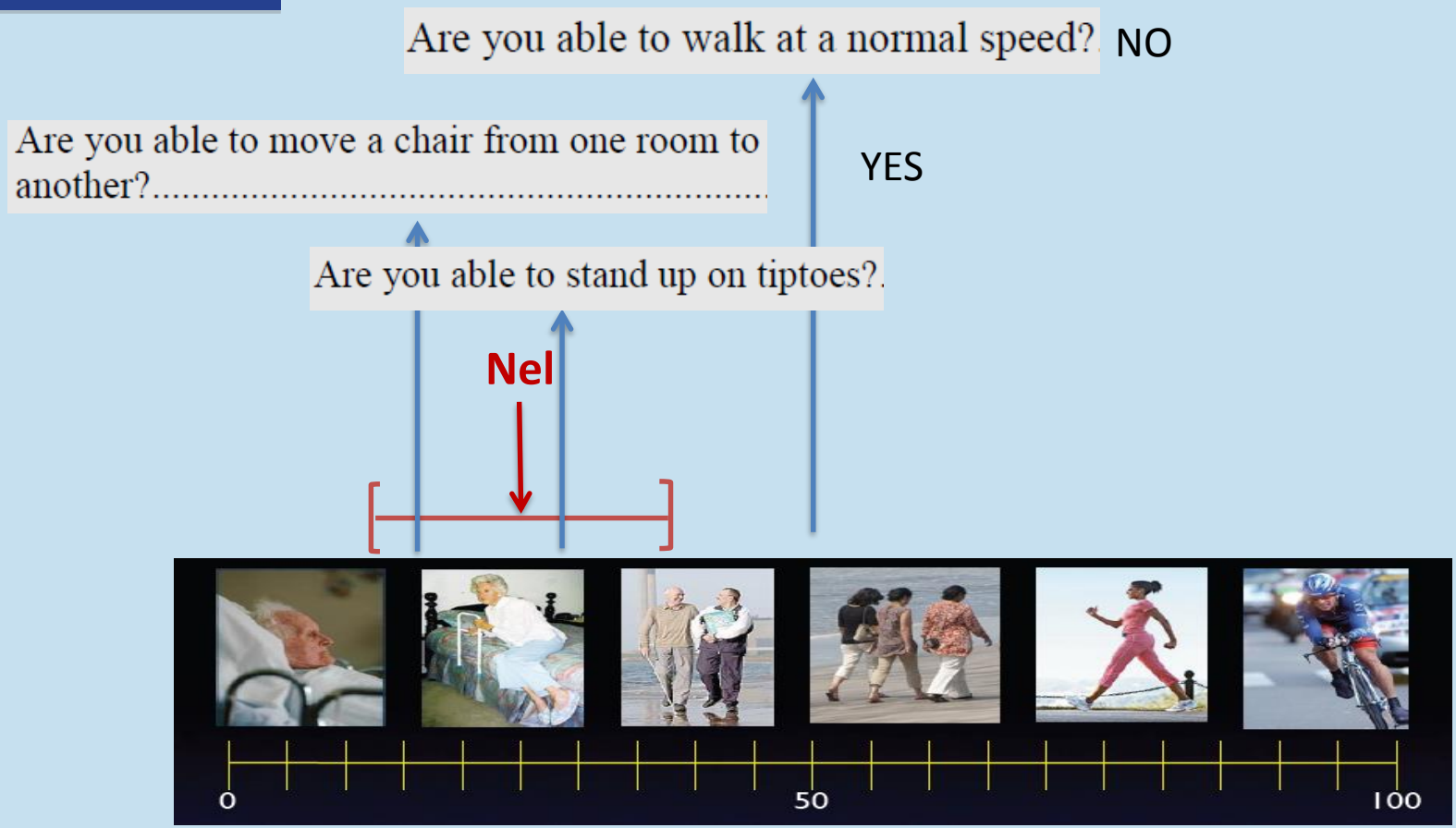
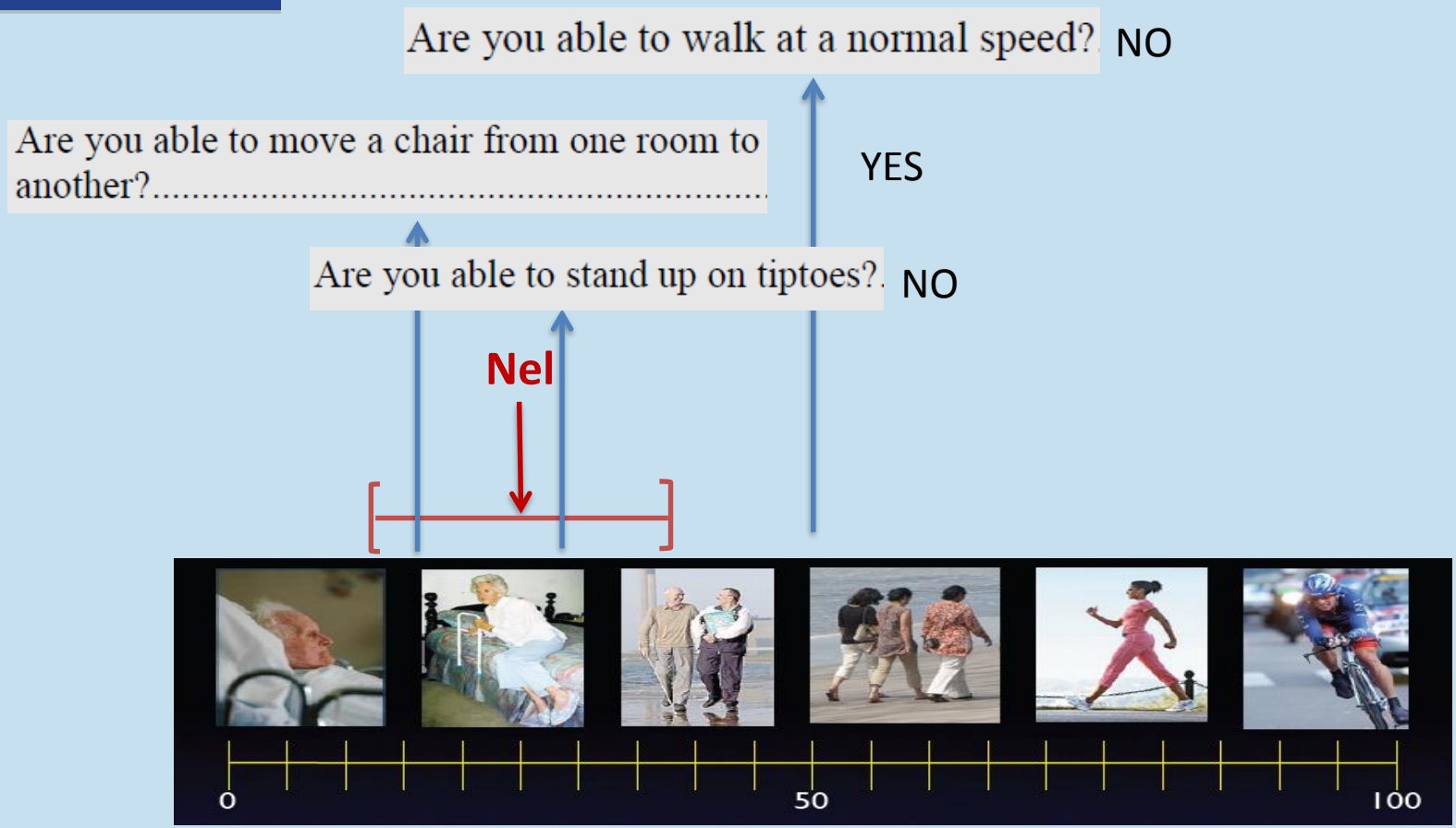


Computerized Adaptive Testing (CAT)



Computerized Adaptive Testing (CAT)

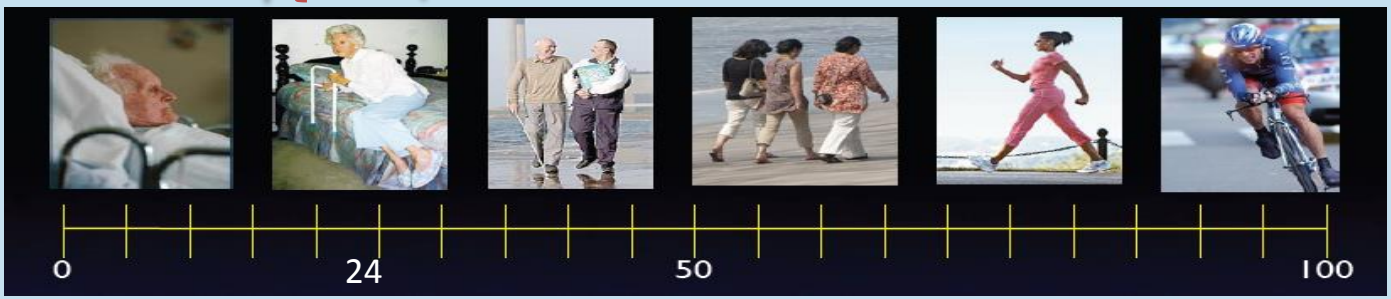
Are you able to walk at a normal speed? NO

YES

Are you able to move a chair from one room to another?.....

Are you able to stand up on tiptoes?. NO

Nel



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Item banks are sustainable

0 25 50 75 100

Physical Functioning Item Bank

Item 1 | Item 2 | Item 3 | Item 4 | Item 5 | Item 6 | Item 7 | Item 8 | Item 9 | Item *n*

Are you able to get in and out of bed?
Are you able to stand without losing your balance for 1 minute?
Are you able to walk from one room to another?
Are you able to walk a block on flat ground?
Are you able to run or jog for two miles?
Are you able to run five miles?

Are you able to use a smartphone?

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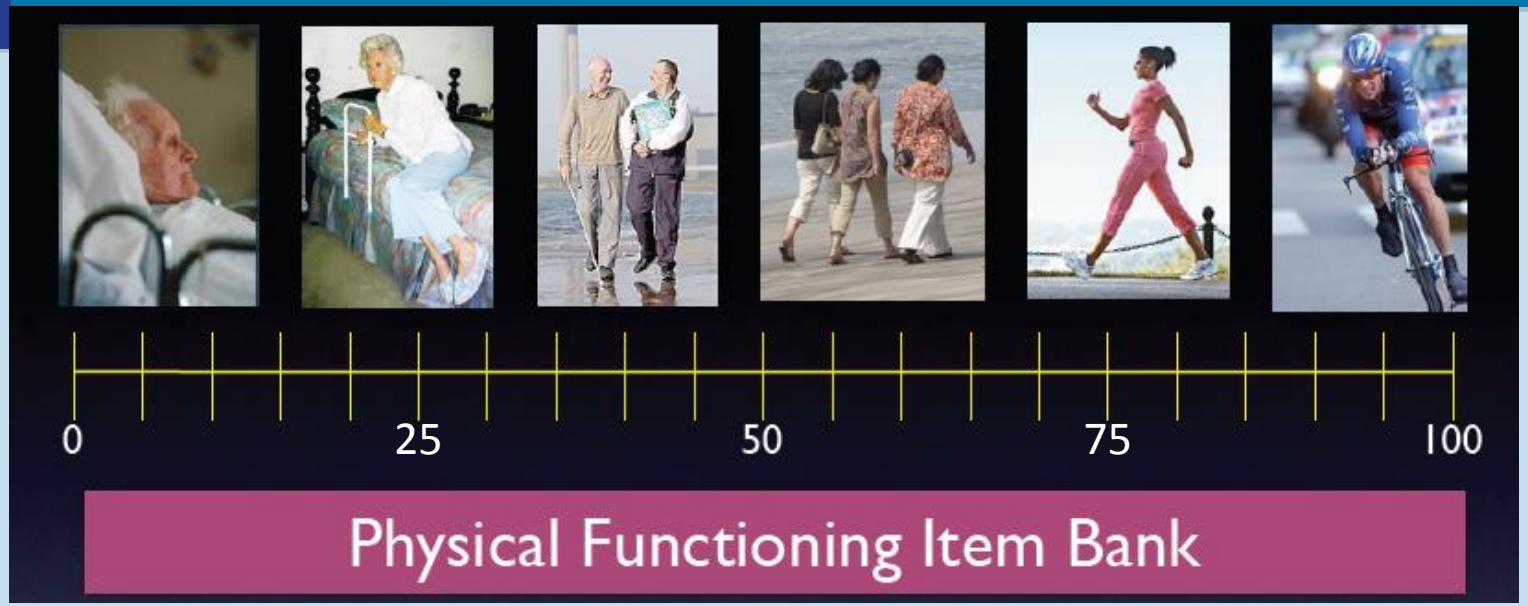
Item banks offer a metric



IRT offers a metric

PROMIS aims to offer and maintain a sustainable gold standard metric for patient-reported outcomes (*the "Celsius" for PROs*)

PROMIS compared to other generic instruments

- PROMIS short forms seem to have equal or slightly better measurement properties than traditional generic PROMs

- PROMIS CATs seem to have better measurement properties than traditional generic PROMs

PROMIS compared to disease-specific instruments

- PROMIS instruments correlate highly with disease-specific instruments measuring similar domains
- PROMIS short forms seem to have slightly worse (sometimes equal) measurement properties than disease-specific PROMs
- <u>PROMIS CATs seem to have similar measurement properties as disease-specific PROMs</u>

PROMIS CATs can replace disease-specific PROMs

PROMIS in physiotherapy

PLOS | ONE

RESEARCH ARTICLE

Psychometric properties of the PROMIS Physical Function item bank in patients receiving physical therapy

Martine H. P. Crins[1]*, Philip J. van der Wees[2], Thomas Klausch[3], Simone A. van Dulmen[2], Leo D. Roorda[1], Caroline B. Terwee[3]

Conclusions

The psychometric properties of the DF-PROMIS-PF item bank are sufficient. The DF-PROMIS-PF can now be used as short forms or CAT to measure the level of physical function of physiotherapy patients.

PROMIS versus H/KOOS

18 studies

- Correlations between PROMIS and H/KOOS are high: they measure the same construct
- Responsiveness of PROMIS is similar or a bit lower than H/KOOS.
- PROMIS does not show floor and ceiling effects, H/KOOS does.
- With PROMIS CATs on average only 4 items need to be completed.

PROMIS versus RDMQ

Chiarotto A, Roorda LD, Crins MH, Boers M, Ostelo RW, Terwee CB. PROMIS Physical Function short forms display item- and scale-level characteristics at least as good as the Roland Morris Disability Questionnaire in patients with chronic low back pain. Accepted Arch Phys Med Rehab Sep 2019.

- PROMIS-PF-4, PROMIS-PF-6 PROMIS-PF-8 and PROMIS-PF-10 showed superior item-level characteristics as compared to PROMIS-PF-20 and RMDQ-24.
- RMDQ-24 have better reliability than PROMIS-PF-4 and PROMIS-PF-6, but the PROMIS-PF-10 and PROMIS-PF-20 have better reliability than RMDQ-24.

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PROMIS in physiotherapy

Journal of Physiotherapy 65 (2019) 110

Journal of
PHYSIOTHERAPY
journal homepage: www.elsevier.com/locate/jphys

Appraisal

Clinimetrics: Patient-Reported Outcomes Measurement Information System (PROMIS®)

Using PROMIS in the Netherlands

- Short Forms are available for free and can be used on paper or electronically
- CATs are available though the Dutch-Flemish Assessment Center. A software link should be established between the Assessment Center and your data collection tool.
- PROMIS CATs are also available in Epic
- Using the CAT software is not free (0.12-0.24 euro per CAT)

PROMIS in the Netherlands

Dutch Flemish Promis gro ×

www.dutchflemishpromis.nl

DUTCH-FLEMISH PROMIS

zoek

Wat is PROMIS • Concepten • Instrumenten • Onderzoek • PROMIS in gebruik • Contact

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- Onderzoekers
- Zorgverleners

Welkom bij de Dutch-Flemish PROMIS groep

Het 'Patient Reported Outcomes Measurement Information System' (PROMIS) is een valide en betrouwbaar meetsysteem waarmee op zeer efficiënte wijze patiënt-gerapporteerde gezondheidsuitkomsten en welzijn gemeten kan worden, bij volwassenen en kinderen. PROMIS is ontwikkeld in Amerika, met financiering van de NIH. PROMIS instrumenten kunnen als papieren vragenlijst afgenomen worden, maar ook door middel van Computer Adaptief Testen (CAT).
In 2010 is de 'Dutch-Flemish PROMIS' groep opgericht met als doel om PROMIS in het Nederlands-Vlaams te vertalen en in Nederland en Vlaanderen te implementeren. Op deze website vindt u informatie over de beschikbare meetinstrumenten en het gebruik van PROMIS in Nederland.

Wij zijn op zoek naar onderzoeksgroepen die willen meewerken aan de validatie van PROMIS en interesse hebben om hierover gezamelijk artikelen te publiceren. Kijk hier...

Dutch-Flemish PROMIS is geregistreerd partner van NIH PROMIS.

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