

Health Systems' Tracking of Function: Lessons Learned

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Lesson #1: Be Conceptually Clear!

Using the ICF to Define FUNCTION

... Information about the level of performance of activities, though more complex and socially constructed, is what needs to be collected to describe, measure, and ultimately explain the interaction between a person's biological health and the environment.

The ICF defines **Human Functioning** as the ***intrinsic health capacity*** of a person to perform simple or complex activities, as well as the ***actual performance*** of those activities in interaction with features of the person's physical, human-built environment, and social environment.

(Stuki & Bickenbach, 2019)

Although the ICF is somewhat vague on this point.... the notion of **disability** might best be thought of as some degree of problem or limitation in a ***person's actual performance*** of some daily activity, or in the nature or quality of participation in some social activity or role, that results from the person-environment interaction.

(Stuki & Bickenbach, 2019)

Conceptually, this is information about *how a person's health state affects their daily life, i.e., information that describes the actual lived experience of health.*
(Bickenbach, 2023)

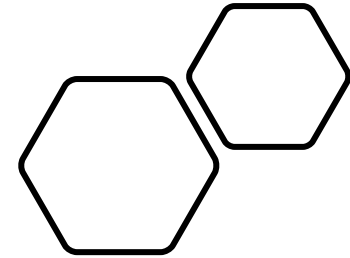
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graph TD; HF[Human Functioning] --> FC([Functional Capacity]); HF --> ABD([Actual Behavior/Disability]);
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Human Functioning

Functional
Capacity

Actual
Behavior/
Disability

FUNCTION $\neq$ Body System & Organ Impairments...



Challenge #2:
Be Selective in What you Track!

- There is no one universal core set of functions that should be tracked.
- The selected functions to be tracked in a health system context should be selected to fit a specific purpose or application

Lesson #3: Use Health System Collaborators !

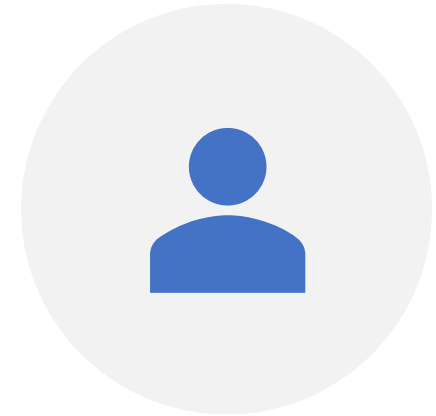
In Building or Selecting Metrics...



USE CLINICIAN FOCUS GROUPS



**VALUE OF PATIENT FOCUS
GROUPS**



**EMPLOY HEALTH SYSTEM AND
CONTENT EXPERTS AS ADVISERS**



Lesson #4: Use 21st Century Measurement Technology!

20th Century Classical Measurement

- A fixed set of items in an outcome items are presented to a clinician/patient, regardless of the appropriateness of a specific item for that patient .
- Scores are summed across all items in the instrument
- Functional Independence Measure (FIM) is a common example & widely used in rehabilitation



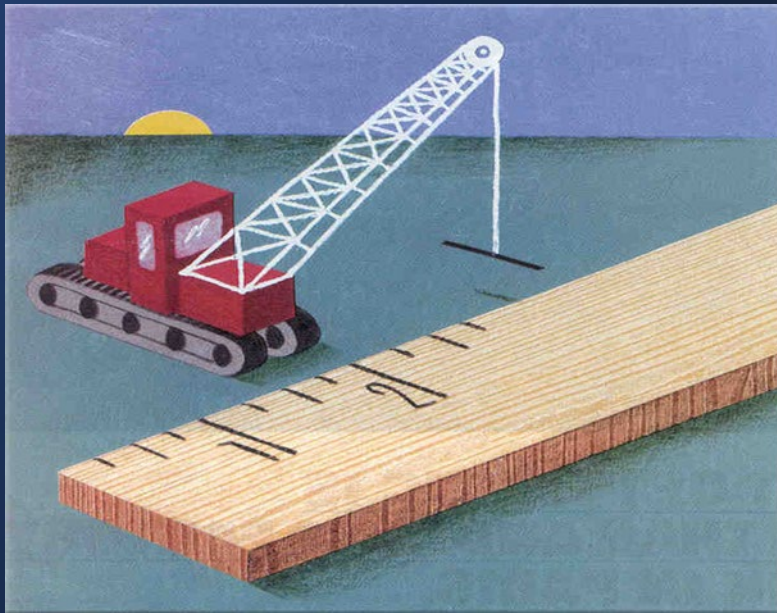
The Measurement Dilemma...

- Most rehabilitation function instruments are setting specific and do not communicate with each other: FIM; MDS; OASIS; CARE
- Need many items or many instruments to cover all the relevant functional outcomes across a broad range of function
- The traditional administration of all items to each person is burdensome & costly

Item Response Theory (IRT)

- IRT refers to a group of measurement models where health outcome scores are item-based and not test-based
- Instrument items are modeled as a function of a person's level of an outcome and the characteristics of each item completed.
- Outcome scores are based on probability models that represent the likelihood a person would give a specific response given their ability level on that outcome.

IRT Measurement...



- Assessment items are selected to cover the entire continuum of 'functional ability'.
- Items in the pool provide different information about the domain of interest.

Computer Adaptive Testing (CATs)

Integrates IRT with computers to administer a measure

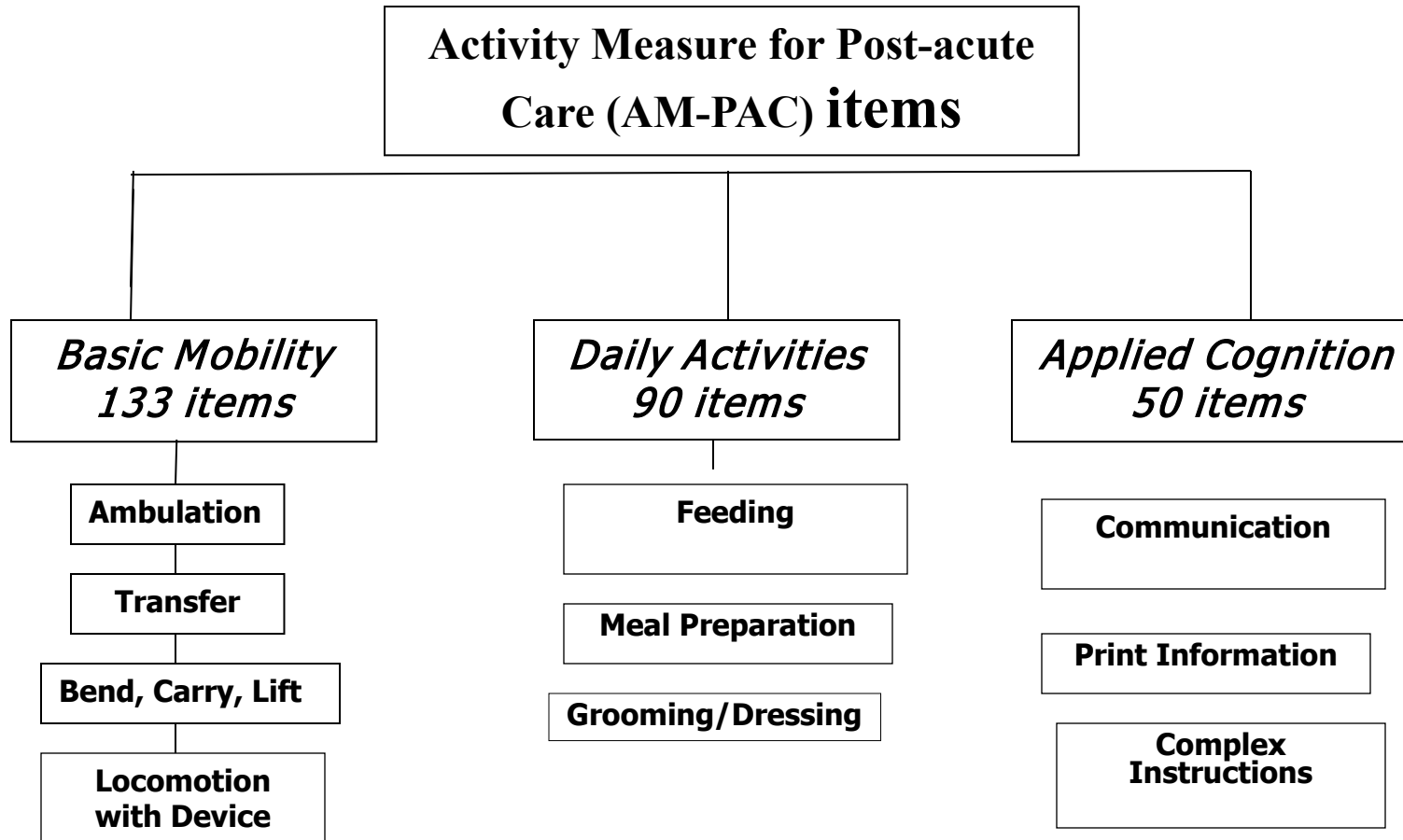
- selects questions on the basis of a patient's response to previously administered questions
- measurement is "adapted" to an individual
- skips uninformative items to minimize response burden
- allows determination of person's standing on an outcome without a loss in measurement precision.



An Example: The Activity Measure for Post Acute Care (AM-PAC)

- Develop a generic functional measure that would meet several key criteria:
 - Could be used across different patient conditions (eg., musculoskeletal, neurologic, major medical)
 - Could be used across care settings to monitor function across an entire episode of care
 - Reliable for patient report or clinician proxy report
 - Sensitive to clinically meaningful change

Scope of AM-PAC Items



AM PAC Development

- 3 quantitative scales administered using patient report or proxy;
 - How much difficulty does the patient have....
 - How much assistance does the patient use...
- Developed in a sample of 1041 with major orthopedic, neurologic, and medical conditions
- Validated on patients from hospital discharge, IRF, SNF, LTCH, HHA, & outpatient services;
- Originally designed to be administered using CATs

Lesson #5:
Be Adaptable & Keep it Simple!

Cleveland Clinic Collaboration in Creating AM-PAC Short Forms



Drs. Fred Frost &
Mary Stilphen

Tracking Mobility & ADL Function

Pre-selected calibrated items from the AM-PAC item bank that fit the target patient population....

Mobility

1. Bed mobility
2. Supine to sit
3. Bed to chair
4. Sit to stand
5. Walk in room
6. 3-5 steps with a rail

ADLs

1. Eating meals
2. Grooming
3. Dressing Uppers
4. Dressing Loweres
5. Toilet (toilet, urinal, bedpan)
6. Bathing (wash, rinse, dry)

Boston University AM-PAC®

Basic Mobility Inpatient Short Form (6-Clicks) Version 2*

Please check the box that reflects your (the patient's) best answer to each question.

How much HELP from another person do you currently need... (If the patient hasn't done an activity recently, how much help from another person do you think he/she would need if he/she tried?)	Total	A Lot	A Little	None
1. Turning from your back to your side while in a flat bed without using bedrails?	☐ 1	☐ 2	☐ 3	☐ 4
2. Moving from lying on your back to sitting on the side of a flat bed without using bedrails?	☐ 1	☐ 2	☐ 3	☐ 4
3. Moving to and from a bed to a chair (including a wheelchair)?	☐ 1	☐ 2	☐ 3	☐ 4
4. Standing up from a chair using your arms (e.g., wheelchair, or bedside chair)?	☐ 1	☐ 2	☐ 3	☐ 4
5. Walking in hospital room?	☐ 1	☐ 2	☐ 3	☐ 4
6. Climbing 3-5 steps with a railing?+	☐ 1	☐ 2	☐ 3	☐ 4

Adaptive Short Forms

- Uses pre-selected items from a calibrated item bank.
 - Allows one to assess different functions in inpatient vs. outpatient settings
 - Items from adaptive short forms include items calibrated on the same metric
 - Standardized scores from different adaptive short forms allow one to track function as a patient moves across an episode of care.

In Summary....



Be
Conceptually
Clear



Be Selective in
What Functions
you Track



Use Health
System
Collaborators



Use 21st
Century
Measurement
Technology



Be Adaptable &
Keep It Simple