

FUNCTION IN SPECIALTY CARE PROGRESS, CHALLENGES, OPPORTUNITIES

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AGENDA

Building on a half century of powerful evidence, provided by multiple specialties

- Function is invaluable for practice of all kinds
- How to measure function
- Can function be changed and does it help change care outcomes?
- Translating evidence to practice

Challenges and Opportunities

**BUILDING ON A HALF
CENTURY OF POWERFUL
EVIDENCE PROVIDED BY
MULTIPLE SPECIALTIES**

FUNCTION IS CLINICALLY VALUABLE

- Reflects patient preferences
- Powerful predictor of all kinds of adverse events in multiple specialties and settings
- Integrates effects of multimorbidity
- Affects need for support (family, community and institutions)
- Informs shared decision-making goals of care
- Reflects social values and costs

HOW TO MEASURE FUNCTION

Capacity to care for oneself: whole body or impairments

Involves a wide range of abilities

Abilities are generally incremental and ordered

Self, significant other and professional report measures include personal and household management

Performance measures often include cognition, lower extremity and upper extremity tasks

INTERVENTIONS

Goals: improve function in chronic disease, prevent acute or gradual functional decline, prevent complications, accelerate recovery

Populations: chronic diseases (diabetes, heart failure, kidney disease), hospitalization (medical, surgical, ICU), outpatient interventions (cancer chemotherapy)

Treatments: exercise, nutrition, medication review, geriatric assessment, care coordination, combinations

Meta-analyses suggest modest/little beneficial effects

Citation: Ellis G, Gardner M, Tsiachristas A, Langhorne P, Burke O, Harwood RH, Conroy SP, Kircher T, Somme D, Saltvedt I, Wald H, O'Neill D, Robinson D, Shepperd S. Comprehensive geriatric assessment for older adults admitted to hospital. *Cochrane Database of Systematic Reviews* 2017, Issue 9. Art. No.: CD006211. DOI: 10.1002/14651858.CD006211.pub3.

Doiron KA, Hoffmann TC, Beller EM.

Early intervention (mobilization or active exercise) for critically ill adults in the intensive care unit.

Cochrane Database of Systematic Reviews 2018, Issue 3. Art. No.: CD010754.

TRANSLATING EVIDENCE TO PRACTICE

- Expanding knowledge base of concepts and methods
 - Feasible with support
 - Hard to sustain
 - Who pays?
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CHALLENGES AND OPPORTUNITIES


MEASURING FUNCTION

- Broad heterogeneity of measure content, methods and scoring create difficulty comparing across studies or pooling data
 - Measures have floors and ceilings; need to match to target population
 - Need to measure efficiently and minimize burden
-

STANDARDIZED AND VALIDATED MEASURES OF FUNCTION

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Self-reported and parent-reported measures of global, physical, mental, and social health for adults and children in the general population and those living with a chronic condition


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Neuro-QoL

Self-reported and proxy-reported measures of physical, mental, and social health for adults and children living with a neurological condition


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Self-reported measures of physical, mental, and social health for adults living with sickle cell disease

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NIH Toolbox®

Performance tests of cognitive, motor, and sensory function and self-reported measures of emotional function for adults and children in the general population and those living with a chronic condition

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ASCQ-Me, the Adult Sickle Cell Quality of Life Measurement Information System, PROMIS, Patient-Reported Outcomes Measurement Information System, NIH Toolbox for the Assessment of Neurological and Behavioral Function, and their logos are marks owned by the U. S. Department of Health and Human Services.



NIH Toolbox[®]

for Assessment of Behavioral and Neurological Function

COGNITION

- Executive Function
- Attention
- Episodic Memory
- Language
- Processing Speed
- Working Memory

SENSATION

- Audition
- Visual Acuity
- Vestibular Balance
- Olfaction
- Taste

MOTOR

- Dexterity
- Grip Strength
- Standing Balance
- Gait Speed
- Endurance

EMOTION

- Psychological Well-Being
- Stress & Self-Efficacy
- Social Relationships
- Negative Affect

NIH TOOLBOX

- Enable cross-study comparisons and integration of data from multiple studies by providing a standard set of brief, well-validated measures
- Dynamic/adaptable over time
- Utilize state-of-the-art psychometric and technological approaches including computerized adaptive testing (CAT) and computer assisted evaluation
- Cover the full range of normal function (not disease states)
- Minimally burdensome to subjects and investigators

PROMIS®

Patient-Reported Outcomes Measurement Information



PROMIS® Adult Self-Reported Health

Global Health

Physical Health

Fatigue
Pain Intensity
Pain Interference
Physical Function
Sleep Disturbance

PROMIS Profile
Domains

Dyspnea
Gastrointestinal
Symptoms
Pain Behavior
Pain Quality
Sexual Function
Sleep-related
Impairment

PROMIS Additional
Domains

Mental Health

Anxiety
Depression

Alcohol
Anger
Cognitive Function
Life Satisfaction
Positive Affect
Psychosocial Illness
Impact
Self-efficacy for
Managing Chronic
Conditions
Smoking
Substance Use

Social Health

Ability to
Participate in Social
Roles & Activities

Companionship
Satisfaction with
Social Roles &
Activities
Social Isolation
Social Support

4/17/2017



HealthMeasures.net/PROMIS



HealthMeasures
TRANSFORMING HOW HEALTH IS MEASURED

PROMIS PHYSICAL FUNCTION

Short form

The following questions ask about your ability to stand and move with and without support. "Support" means using items such as canes, walking sticks walkers and leg braces, or other people.		Yes	No			
PFC6	Can you walk 25 feet on a level surface (with or without support)?	<input type="checkbox"/>	<input type="checkbox"/>			
		Yes → Participant receives all items No → Participant skips PFC6 to PFB5 and proceeds to PFA55				
		Without any difficulty	With a little difficulty	With some difficulty	With much difficulty	Unable to do
PFC8	Are you able to walk a block on flat ground?	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1
PFC9	Are you able to walk up and down two steps?	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1
PFA8	Are you able to run at a fast pace for two miles?	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1
PFA5	Are you able to do yard work like raking leaves, weeding, or pushing a lawn mower?	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1
		Not at all	Very little	Somewhat	Quite a lot	Cannot do
PFB7	Does your health now limit you in doing strenuous activities such as backpacking, skiing, playing tennis, bicycling or jogging?	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1
PFA6	Does your health now limit you in hiking a couple of miles on uneven surfaces, including hills?	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1
		Without any difficulty	With a little difficulty	With some difficulty	With much difficulty	Unable to do
PFA5	Are you able to wash and dry your body?	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1
PFC5	Are you able to get in and out of bed?	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1
PFA9	Are you able to bend down and pick up clothing from the floor?	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1

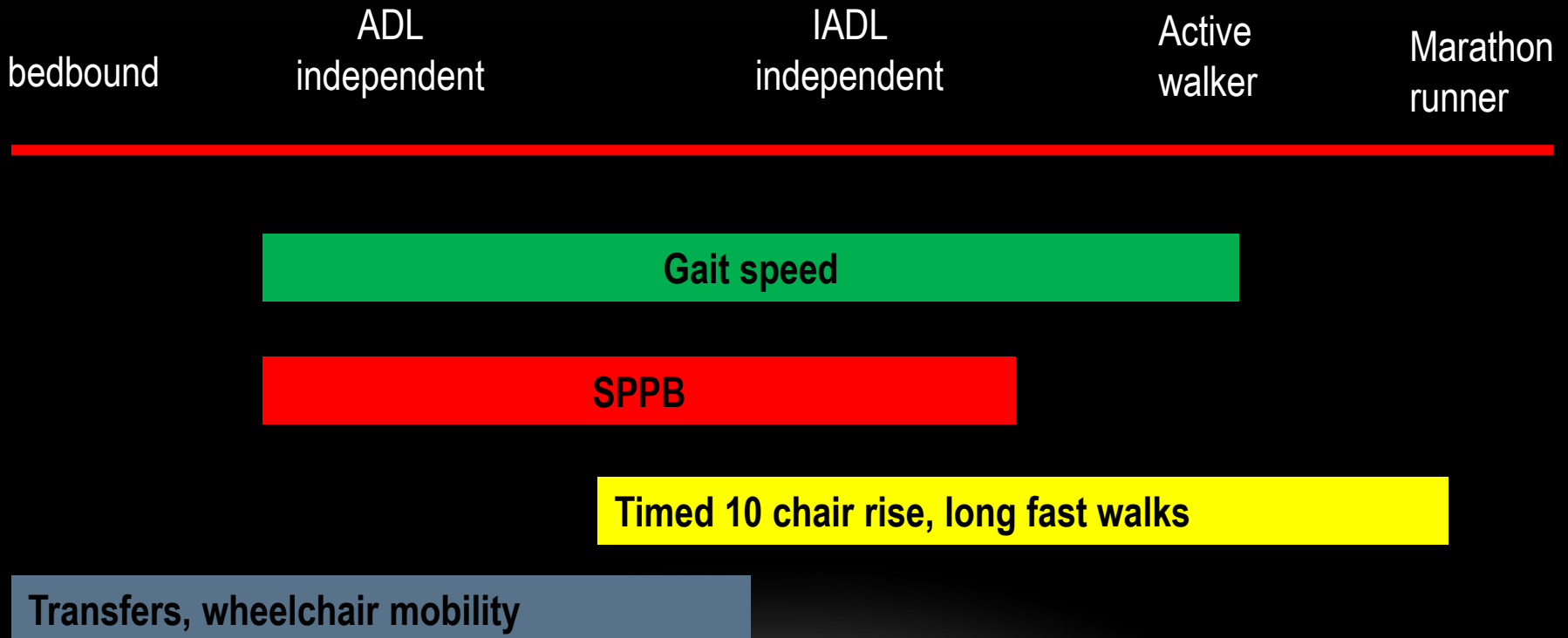
124 item bank for computer adaptive testing

Can create alternate short forms

Scaling generates summary scores higher is better

What about "don't do" or degree of ease?

THE BROAD SPECTRUM OF FUNCTION AFFECTS CHOICE OF MEASURES



Where do your patients fit in this spectrum?

MEASURE EFFICIENCY AND BURDEN

- Know the range of function in your target population
 - Consider item response theory to screen and then focus
 - Consider sequential testing- failure leads to easier test, success to more difficult
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INTERVENTION CHALLENGES

- Hard to reproduce
- Multiple methodological issues
- Meta-analyses difficult due to heterogeneity of samples, measures, interventions
- Overall suggest modest or no benefit

Resource: Cherubini et al Clinical Trials in Older Adults Wiley et al 2016

REPRODUCING COMPLEX INTERVENTIONS

- Protocolize and document intervention activities
 - Document comparison intervention activities
 - For multiple intervention components, detail how decisions are made to apply each component
 - Plan for intercurrent events and re-entry into intervention
-

METHODOLOGICAL ISSUES

Samples: document how cases are detected and approached, track reasons for exclusion and refusal, capture potentially influential baseline characteristics

Measures: plan for nonresponse with alternate low burden measures, avoid floors and ceilings, use at least some widely accepted measures

Analysis: anticipate and evaluate biases due to drop outs (sensitivity analyses, imputation)

PLAN FOR FUTURE META-ANALYSES

- CONSORT checklist
 - Shared measures
 - Clarify timing of initiation, duration and intensity of intervention, frequency and types of outcome measures
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WHY ARE WE FINDING MODEST/LITTLE BENEFIT?

- **WHO** to treat? Need for better targeting: secondary analyses of existing trials to determine who benefitted (responder/nonresponder analysis)
 - **HOW and WHEN** to treat? Multiple pilots to vary treatment intensity, timing
 - **TIME FRAME** for benefit? Link to timing of outcome measures
-

TRANSLATING EVIDENCE TO PRACTICE

- Provider and system incentives: what's in it for them? BUY IN!!!
 - Internal advocates
 - Consider impact on the front line people
 - As simple and convenient as possible
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SUMMARY

- We know a lot
 - We can address challenges using hard won experience
 - With a shared focus on function, we can work together to improve care
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