THE FUNCTION OF FUNCTION — USE OF FUNCTIONAL STATUS IN MEDICAL CARE

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OBJECTIVES

• describe the relevance and importance of assessing functional status, especially in geriatrics
• identify tools for assessment of functional status in subspecialty settings
• discuss the use of the International Classification of Functioning (ICF) as a tool for measuring functioning in society
• discuss the potential of the interRAI instrument for a combined health and functional assessment across care domains
FUNCTIONAL STATUS - DEFINITION

An individual's ability to perform normal daily activities required to meet basic needs, fulfill usual roles, and maintain health and well-being.

Functional status includes functional capacity and functional performance.

FUNCTIONAL STATUS - DEFINITION
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Functional capacity: represents an individual's capacity to perform daily activities in the physical, psychological, social, and spiritual domains of life.

Functional performance: refers to the activities people actually do during the course of their daily lives.
FUNCTIONAL STATUS - RELEVANCE
WHO GLOBAL RECOMMENDATIONS ON PHYSICAL ACTIVITY FOR HEALTH (2010)

SUMMARY OF SCIENTIFIC EVIDENCE

ACTIVE INDIVIDUALS

Lower rates of

- all cause mortality
- coronary artery disease
- hypertension
- stroke
- type 2 diabetes
- colon cancer
- breast cancer
- falls
- functional & role limitations

Favorable level of

- cardiorespiratory fitness
- muscular fitness
- body mass & composition
- biomarker profile for prevention
- cognitive function
- functional health

BENEFITS OF PHYSICAL ACTIVITY

• are observed in older adults with or without existing NCDs

• are likely to be noted in inactive adults who increase their level of physical activity
BENEFITS OF PHYSICAL ACTIVITY

• Older adults should be encouraged to be active to the level their abilities and health conditions allow.
EXERCISE – HOW YOU CAN GET STARTED

The doctor said he needed more activity. So I hide his T.V. remote three times a week.
DEFINITION OF PHYSICAL ACTIVITY in older adults

• Leisure time physical activity
• Transportation (walking, cycling)
• Occupational (if still engaged in work)
• Household chores
• Sports or planned exercise in the context of daily, family and community activities
FUNCTIONAL STATUS - IMPORTANCE

• measure disease outcome
  – rheumatological conditions
• it is the impact of the disease on the patient
FUNCTIONAL STATUS - IMPORTANCE

• as much prognostic information as the lab data
• nurse's report that a patient required total assistance for bathing was the best single predictor of in-hospital mortality in the models for patients with either cerebrovascular disease or pneumonia

FUNCTIONAL STATUS - IMPORTANCE

• If you could take a test that would predict your odds of dying within the next four years that was 81 per cent accurate, would you?

• prognostic index with 12 predictors (5 related to function)

• predicts the likelihood of dying within four years for people 50 and older (4% with none or few risk factors and 64% with the most risk factors)

# Value of Functional Measures in Prognostication

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Disease</th>
<th>Functional Difficulties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age 60-64: 1</td>
<td>Diabetes: 1</td>
<td>Bathing: 2</td>
</tr>
<tr>
<td>Age 65-69: 2</td>
<td>Cancer: 2</td>
<td>Walking several blocks: 2</td>
</tr>
<tr>
<td>Age 70-74: 3</td>
<td>COPD: 2</td>
<td>Managing Money: 2</td>
</tr>
<tr>
<td>Age 75-79: 4</td>
<td>CHF: 2</td>
<td>Pushing/pulling heavy objects: 1</td>
</tr>
<tr>
<td>Age 80-84: 5</td>
<td>Smoker: 2</td>
<td></td>
</tr>
<tr>
<td>Age &gt; 85: 7</td>
<td>BMI &lt; 25: 1</td>
<td></td>
</tr>
<tr>
<td>Male: 2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

FUNCTIONAL STATUS - IMPORTANCE

- assessment of pain
- “What does this pain keep you from doing?”
FUNCTIONAL STATUS - IMPORTANCE

• determinant of end of life medical costs

http://www.annals.org/content/154/4/235.full.pdf+html
FUNCTIONAL STATUS - IMPORTANCE

• in one study, degree of functional impairment and the slope of functional decline were strong determinants of medical costs

• those who needed no help with activities of daily living in the last 3 months of life had the lowest costs

• those with severe functional deficits in the last 3 months of life had 64% higher costs than those who needed no ADL help

http://www.annals.org/content/154/4/235.full.pdf+html
"Healthcare reforms may have a greater effect on improving care and reducing costs if they prioritize patient-centered rather than single disease oriented models of care. These efforts should include high-quality primary care and well-coordinated care for these complicated and functionally impaired patients."

http://www.annals.org/content/154/4/235.full.pdf+html
FUNCTIONAL STATUS - IMPORTANCE

- affects ability to remain at home.
- determines plan of care & discharge plan.
- influences patient/caregiver/family teaching.
FUNCTIONAL STATUS - DOCUMENTATION

• The Sixth Vital Sign?
FUNCTIONAL STATUS - DOCUMENTATION

• many medical records contain no documentation of individual BADLs and IADLs

• in one study 61% to 98% of records lacked documentation, with the exception of walking (24% of medical records lacked documentation).

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1495285/
FUNCTIONAL ASSESSMENT TOOLS
FUNCTIONAL ASSESSMENT TOOLS

- a. The PULSES Profile (Moskowitz 1957).
- c. The Barthel Index (Mahoney 1958).
- d. The Kenny Self-Care Evaluation (Schoening 1965; Schoening 1968).
- f. The Medical Outcomes Study Physical Functioning Measure (Stewart 1992).
- g. A Rapid Disability Rating Scale (Linn 1982).
- h. The Dartmouth COOP Functional Health Assessment Charts (Nelson 1996).
- i. The Functional Status Index (Jette 1978; Jette 1980).
- j. The Edmonton Functional Assessment Tool (Kaasa 1997).
- m. The Lambeth Disability Screening Questionnaire (Patrick 1981).
- n. Stanford Health Assessment Questionnaire (Fries 1982).
- o. FIM™ Instrument (Hamilton 1987).
RHEUMATOLOGY FUNCTION TESTS

GLOBAL FUNCTIONAL PERFORMANCE

• Grip Strength
• Walking Velocity
• Timed Shirt button test

http://www.biomedcentral.com/content/pdf/ar1188.pdf
EXERCISE CAPACITY
AS A REFLECTION OF CARDIAC FUNCTION

• Exercise capacity is reported in metabolic equivalents of task (METs).

• METs indicate units equivalent to the metabolic equivalent of resting oxygen uptake while sitting.
### ENDURANCE EXERCISES & THEIR METABOLIC REQUIREMENTS

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>INTENSITY</th>
<th>METs</th>
<th>Kcal/hour</th>
</tr>
</thead>
</table>
| Walking 3mph, 5km/h  
Cycling 6mph, 10km/h  
Light stretching  
Light housework  
Swimming (floating) | LOW | 2 – 4 | 180 - 300 |
| Walking 4mph, 6km/h  
Cycling 8mph, 13km/h  
Golf  
Calisthenics (sit ups, push ups, pull ups)  
Swimming (treading water)  
Heavy housework or yard work | MODERATE | 5 – 6 | 300 - 360 |
| Walking 5mph, 8km/h  
Cycling 12mph, 18km/h  
Swimming 0.8 km/half mile in 30min  
Recreational tennis  
Hiking | HIGH | 7 – 8 | 420 - 480 |
FUNCTIONAL ASSESSMENT TOOLS IN GERIATRICS

- Katz Index
- Get Up and Go
- Functional Reach
- Gait Assessment
- Tandem stance
- Tandem walk
- Barthel Index
- Performance Oriented Mobility Assessment
FUNCTIONAL ASSESSMENT TOOLS IN ONCOLOGY

- Edmonton Functional Assessment Tool (EFAT)
- Karnofsky Performance Scale
- ECOG Performance Status
ROLE OF ICF

International Classification of Functioning, Disability and Health (ICF)
ICF

• the International Classification of Functioning, Disability and Health

• classification of health and health-related domains

• WHO's framework for measuring health and disability at both individual and population levels
ICF

• acknowledges that every human being can experience a decrement in health and thereby experience some degree of disability
• shifts focus from cause to impact
• places all health conditions on an equal footing
• allows comparison using a common metric (the ruler of health and disability)
• takes into account the social aspects of disability
• records the impact of the environment on the person's functioning

http://www.who.int/classifications/icf/en/
ICF CATEGORIES

• b  Body Functions
• s  Body Structures
• d  Activities and Participation
• e  Environmental Factors
ICF EXAMPLES

• **b** **BODY FUNCTIONS**
  – additional respiratory functions – coughing, sneezing, mouth breathing, whistling

• **s** **BODY STRUCTURES**
  – lungs, lower legs, knee joint

• **d** **ACTIVITIES AND PARTICIPATION**
  – lift, pick, throw, walk

• **e** **ENVIRONMENTAL FACTORS**
  – assistive technology, construction technology for access, utilities policies
**ICF: Clinical and Epidemiological Use**

- ICF is used for functional status assessment, goal setting & treatment planning and monitoring, as well as outcome measurement

- Australia, Italy, The Netherlands.....
ICF: INTERNATIONAL AND NATIONAL HEALTH AND DISABILITY REPORTING

- has been used to measure health status of the general population in 71 countries
- currently generating population norms for selected ICF domains
- national level: Australia, Ireland, Mexico, Zimbabwe, Malawi
- ICF based indicators and reporting systems for use in rehabilitation, home-care, age-care, and disability evaluation are ongoing in Australia, Canada, Italy, India, Japan, Mexico
INTERRAI
compatible assessment instrumentation that can be used across care domains
**INTERRAI**

- collaborative network of researchers in over 30 countries committed to improving health care for persons who are elderly, frail, or disabled

- goal is to promote evidence-based clinical practice and policy decisions through the collection and interpretation of high quality data about the characteristics and outcomes of persons served across a variety of health and social services settings
INTERRAI INSTRUMENTS

• interRAI instruments share a common language, (refer to the same clinical concept in the same way across instruments).
  – improve continuity of care,
  – integrate care/supports for each individual
  – track progress across settings and over time
INTERRAI SUITE OF INSTRUMENTS

• Home care
• Assisted Living
• Long term Care Facility
• Palliative Care
• Acute Care
• Post Acute Care
• Mental Health Assessment
• Contact Assessment
• ........ ........ ........ ........
(Minimum Data Set) MDS

• standardized tool for assessing the functional capacity of residents of long term care facilities

• leads to formulation of individual care plan for each resident

• has potential to trigger any of twenty care areas

• MDS data is also used for monitoring of nursing home quality and performance and has been widely employed for research
SECTIONS WITHIN THE MDS

- Demographics
- Hearing
- Speech
- Vision
- Cognition
- Mood
- Delirium
- Behavior
- Activity preferences
- Functional Status

- Bladder and Bowel
- Active Diagnoses
- Pain Assessment
- Fall History
- Nutrition
- Orodental status
- Skin conditions
- Medications
- Special treatments
- Rehabilitation
INTERRAI GLOBAL EFFORTS

• use and testing of instruments across various settings and countries
• pooling of international data
• development of country specific instruments
• collaboration with governments for introduction and use of interRAI instruments
**INTERRAI USE IN U.S.A.**

- The interRAI tools have been selected by New York State as the structure for a mandated Uniform Assessment Tool (UAT) for Long-Term Care.

- The State of New York is proceeding to adopt the interRAI Suite for long term care, commencing with the interRAI Home Care instrument.
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SUMMARY

• Functional status is an important factor to consider in the medical care of patients, especially elderly and frail patients.

• Variety of tools exist to assess functional status.

• It will be advantageous to use tools that combine assessment of health and function.

• Combination of ICD-10 and ICF and/or use of interRAI instruments offer methods for combined assessments of health and function.