Breaking Down Barriers
Utilization of Standardized Measures in Acute Care

Combined Sections Meeting 2016
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Speakers

Brian McDonnell, PT, DPT, GCS
Shannon Carthas, PT, DPT
– Beth Israel Deaconess Medical Center
– Boston, MA

Shelby Hart, PT/s
– Boston University
– Boston MA

Disclosure

• No relevant financial relationship exists.
Learning Objectives

PART I:
• To identify the value in using standardized tests and outcome measures as part of regular clinical practice.
• To discuss therapist-identified barriers and facilitators to utilizing standardized tests and outcome measures.

PART II:
• To review evidence-based knowledge translation strategies.
• To review trends in utilization of measures by physical therapists at Beth Israel Deaconess Medical Center.

PART III:
• To review our selection process for choosing a group of standardized tests and outcome measures.
• To briefly review the 10 measures we selected.
Beth Israel Deaconess Medical Center

• 672 bed level one trauma center
  – 463 med/surg beds
  – 77 intensive care unit beds

• 24-34 full time physical therapists
  – Rotate to a different unit every 6months

• Weekly receive 300-400 PT consults

Defining Terms

• Tests and Measures: The means of gathering reliable and valid cellular-level to person-level information about the individual’s capacity for, and performance during, movement-related functioning. [Link](http://guidetoptpractice.apta.org/content/1/SEC4.body)

• Standardized Tests and Measures: Those that use closed-ended questionnaire formats or specific protocols for implementation, provide scores that allow quantitative assessment of ability, and have been evaluated for their psychometric properties. [Link](http://guidetoptpractice.apta.org/content/1/SEC4.body)

• Outcome Measures: When standardized tests are used to ‘determine the change in ability from before to after an intervention.’ (Jette 2009)

Why Should We Be Using Standardized Tests and Outcome Measures?
Current State of Healthcare

According to CMS, as of January 1, 2013, Functional Reporting requires therapy practitioners and providers to report non-payable G-codes and modifiers to convey information about the beneficiary’s functional status including projected goal status throughout the episode of care.

- Skilled Nursing Facilities
- Private Practice
- Home Health Agencies
- Rehabilitation Agencies
- Hospitals (Outpatient, ED, Inpatient Part B)
- CORFs
- Critical Access Hospitals

Standardized Tests and Outcome Measures…

- Contribute to an evidence-based approach to clinical decision making. (Jette 2003)
- Allow physical therapists to quantify observations and compare patient status between examination periods. (Potter 2011, Sullivan 2011)
- Assist with identification of impairments of body functions and structures, activity limitations, and participation restrictions.
- Increase efficiency of practice.

Use In Acute Care

- Allows the physical therapist to establish a baseline status which can then be referenced as therapists in successive treatment settings strive to quantify changes in individuals’ function.

http://gudeoptpractice.apta.org/content/1/SEC3.body

- Facilitate communication and continuity of care for patients transitioning from one health care setting to another. (Their 2006)

- Informs clinical decision making as it applies to making appropriate discharge recommendations. (Bland 2014)
The Knowledge to Practice Gap

- Out of 456 PTs, only 218 (47.8%) reported that they used standardized outcome measures in practice

<table>
<thead>
<tr>
<th>FACILITY</th>
<th>MEASURE USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Care</td>
<td>16.4%</td>
</tr>
<tr>
<td>Inpatient Rehab</td>
<td>30.8%</td>
</tr>
<tr>
<td>Extended Care</td>
<td>23.1%</td>
</tr>
<tr>
<td>Outpatient</td>
<td>60.5%</td>
</tr>
<tr>
<td>Home Care</td>
<td>64.7%</td>
</tr>
<tr>
<td>School System</td>
<td>6.7%</td>
</tr>
</tbody>
</table>

(Jette, 2009)

Current State of Practice

- Recent graduates demonstrated better knowledge of evidence-based practice skills compared with therapists with 6 to 15 years of clinical experience.
  (Manns, 2014)

Perceived Barriers to Use of Measures

- Time for the identification of a suitable measure, administration, scoring and interpretation of results
- Administrative support and resources
- Financial compensation
- Knowledge (familiarity with, lack of training in)
- Agreement on which measures to use
- Access to measures

(Swinkels, 2011)
**Perceived Facilitators to Use of Measures**

- Knowledge of psychometric properties
- Support of colleagues in the use of measurement instruments
- Active educational initiatives
- Expertise and professional support
- Mandatory reporting

(Abrams, 2006; Van Peppen, 2008; Swinkels, 2011)

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**Review**

- There are many benefits to using standardized tests and outcome measures.
- Despite these benefits many therapists do not consistently incorporate this type of evidence into practice.
- Specific barriers to using measures have been identified by clinicians.

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**Knowledge Translation (KT)**

“A dynamic and iterative process that includes synthesis, dissemination, exchange and ethically sound application of knowledge to improve health, provide more effective health services and products, and strengthen the health care system.”

(Canadian Institutes of Health Research: Knowledge Translation, 2013)
Knowledge Translation (KT)

- Active, multi-component knowledge translation activities may result in:
  - Improved self-perceived knowledge of relevant evidence.
  - Positive changes in practice behaviors of physical therapists’ incorporation of evidence into practice.

(Menon, 2009)

KT Strategies Implemented at Beth Israel Deaconess Medical Center

- Local consensus process
- Interactive educational sessions including case conferences and journal clubs
- Printed materials
- Incorporation of standardized measures into the electronic medical record
- Opinion leaders
- Mandates from managers

Local Consensus Process

- Committee established to select standardized tests and outcome measures.

“Barriers to committed use of a clinical innovation can arise when outside standards are imposed without customizing the program to meet the unique needs of the organization.”

(Stevens, 2010)
Local Consensus Process
Bridging the Gap

• Barriers Addressed:
  – Lack of time for the identification of a suitable measure (Andrews 2008)
  – Lack of agreement on which measures to use

• Facilitators Incorporated:
  – Support of colleagues in the use of measurement instruments

Interactive Educational Sessions

• Mandatory attendance at educational sessions which included:
  – Description of benefits of using standardized tests and outcome measures in acute care.
  – Review of each measure including execution, interpretation of psychometric properties, and incorporation into clinical decision making.

• Incorporation into pre-existing department-wide educational activities.

• Educational meetings have been shown to increase the use of clinical guidelines including the use of functional outcome measures by clinicians. (van der Wees, 2008)

Interactive Educational Sessions
Bridging the Gap

• Barriers Addressed:
  – Lack of knowledge regarding familiarity with measures

• Facilitators Incorporated:
  – Knowledge of psychometrics
  – Professional support
Printed Materials

• The provision of laminated materials for easy reference during the daily routine has been used as part of previously described successful multifaceted interventions to encourage evidence-based practice of PTs. (Rebbeck, 2006)

• ...and has been associated with sustained practice change. (National Center for the Dissemination of Disability Research 1996)

Printed Materials

- Populations Validated: Elders, PD, Stroke, Brain Tumor, Hip Fracture, LE Amputation, MS, SCI, TBI, AD, General neurologic movement disorders, s/p cardiac surgery.
- Information Available: MCID for community dwelling elders, CVA, and SCI. MDC for AD, Hip Fracture, PD, and TBI. Cuff off scores to help predict discharge destination for hospitalized elders admitted with cardiopulmonary, respiratory or GI problems or s/p cardiac surgery. Cut off scores for community dwelling elders prognosis for I in ADLs and to predict need for fall risk reduction
- Limitations: Can only be performed with individuals who do not require physical assist. It is ok to provide CG if required but try to walk posterior laterally from the patient (out of visual field) if possible so as not to provide pacing cues to the patient.
- Instructions: Ask the patient to focus on walking at a comfortable speed without talking.
  - Ideally: 5 meter acceleration phase followed by a 10 meter timed phase and then another 5 meter deceleration phase. Farr Building 11 tiles = 5meters. Clinical Center/East Campus 16.5 tiles = 5meters
  - ADs can be used but must be kept consistent and documented from test to test
  - If patients are unable to complete a 20 meter course then it is acceptable to use a shorter course (as short as 4m) and it is acceptable to use a static start but modifications should be documented.
  - If possible (which may not be the case in acute care due to endurance issues) have the patient perform 2-3 trials and use average or best (document which) for increased reliability.
Printed Materials
Bridging the Gap

• Barriers Addressed:
  – Lack of time to select a suitable measure
  – Lack of access to measures
  – Lack of time for administration of the measure

Electronic Medical Record Templates

• Incorporation of standardized measures into electronic medical records has been successful in improving clinician adherence to utilization of standardized assessments. (Shields, 1994)
EMR Templates
Bridging the Gap

• Barriers Addressed:
  – Lack of time for the interpretation of results

• Facilitators Incorporated:
  – Knowledge of psychometrics

Opinion Leaders
Bridging the Gap

• Incorporation of standardized tests and measures into our pre-existing clinical mentorship program. (Carthas and McDonnell 2013)
  – Discuss measure use in the context of specific patients as part of regular, weekly mentoring meetings.
  – Supervise practice in the administration and interpretation of measures during direct patient care.

• The involvement of opinion leaders has been used as part of previously described successful multifaceted interventions to encourage evidence based practice of PTs. (Rebbeck, 2006; Brown, 2005)

Opinion Leaders
Bridging the Gap

• Barriers Addressed:
  – Lack of familiarity with standardized measures
  – Lack of training in administration of standardized measures

• Facilitators Incorporated:
  – Support of colleagues in the use of measurement instruments
  – Professional support
Mandates From Managers

- Barriers Addressed:
  - Lack of financial compensation

- Facilitators Incorporated
  - Mandatory reporting of outcome measures

- It has been suggested that organizations could make use of standardized tests and outcome measures obligatory in order to increase implementation. (Abrams, 2006)

Impact of KT Strategies at BIDMC

Data Collection

- DATES
  - Period one: 9/1/13-9/7/13 (Baseline)
    *Mandated use of G Codes
  - Period two: 5/3/14-5/9/14
    *Quality improvement project
  - Period three: 3 Months Post QI
    *Audit and Feedback
  - Period four: 8 Months Post QI
  - Period five: 13 Months Post QI
Breaking Down Barriers: Utilization of Standardized Measures In Acute Care

February 18th, 2016

Frequency of Measure Use

Period 1 to Period 4 = 106% increase
Period 1 to Period 5 = 62.5% increase

Percent of Evaluations Where at Least One Measure was Used AND Interpreted

<table>
<thead>
<tr>
<th>TIME-PERIOD</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period 1</td>
<td>5%</td>
</tr>
<tr>
<td>Period 2</td>
<td>9%</td>
</tr>
<tr>
<td>Period 3</td>
<td>39%</td>
</tr>
<tr>
<td>Period 4</td>
<td>39%</td>
</tr>
<tr>
<td>Period 5</td>
<td>59%</td>
</tr>
</tbody>
</table>

*After QI Program

Frequency of Interpretation for Additional Measures Used

103% INCREASE!!!
Breaking Down Barriers: Utilization of Standardized Measures In Acute Care

February 18th, 2016

Which Standardized Measures Were Used?

<table>
<thead>
<tr>
<th>MEASURE</th>
<th>PERIODS 1-2</th>
<th>PERIODS 3-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orpington</td>
<td>0%</td>
<td>1%</td>
</tr>
<tr>
<td>Comfortable Walking Speed</td>
<td>25%</td>
<td>41%</td>
</tr>
<tr>
<td>Tinetti</td>
<td>42%</td>
<td>21%</td>
</tr>
<tr>
<td>PRIT-4</td>
<td>0%</td>
<td>2%</td>
</tr>
<tr>
<td>New Mobility Score</td>
<td>0%</td>
<td>1%</td>
</tr>
<tr>
<td>Dynamic Gait Index</td>
<td>5%</td>
<td>4%</td>
</tr>
<tr>
<td>Timed Get Up and Go</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>6MWT</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>CAM ICU</td>
<td>25%</td>
<td>26%</td>
</tr>
<tr>
<td>Other*</td>
<td>3%</td>
<td>4%</td>
</tr>
</tbody>
</table>

So How Did We Select Our Measures?

Local Consensus Group Goal

Create a group of measures that are validated for use in a wide variety of diagnoses, consistent with the diverse patient population at a large academic medical center.
**Important Considerations**

- Established psychometric properties:
  - Reliability, Validity, Responsiveness
- Clinical utility of tests and measures in acute care
  - Discharge disposition prediction
  - Functional status change during hospitalization
  - Prognosis
  - Fall risk
- Measures developed or studied specifically in the acute care setting
- Recommendations made by the APTA EDGE (Evaluation Database to Guide Effectiveness) task forces

**Other Considerations**

- Staff's pre-existing familiarity with certain measures
- Ease of use
- Time to administer
- Equipment requirement
- Performance based measures over self-report measures (Jette, 2009)

**Measurement Selection**

- **APTA Recommendations:**
  Measurements “at the level of activity and participation” demonstrate the value of physical therapy in helping individuals achieve their identified goals and, therefore, are most meaningful.”
  
  (http://guidetoppractice.apta.org/content/1/SEC3.body)
10 Measures Chosen

Measurement at the Level of Activity
- Timed Up and Go
- Six Minute Walk Test
- Orpington Prognostic Scale
- Comfortable Walking Speed
- PFIT-s
- POMA
- DGI
- AM-PAC

Measurement at the Level of Participation
- New Mobility Scale

Measurement at the Level of Body Structure and Function
- CAM-ICU

Timed Get up and Go

(Podsiadlo & Richardson, 1991)

Overview

Directions:
- The patient sits in a standard armchair, not against the wall, with his/her back against the chair back.
- On the command “go”, the patient rises from the chair, walks 3 meters at a comfortable and safe pace, turns, walks back to the chair and sits down.
- Timing begins at the instruction “go” and stops when the patient’s buttocks touch the chair.
- The patient should have one practice trial that is not included in the score.
- Patient must use the same assistive device each time he/she is tested to be able to compare scores.
Timed Get Up and Go

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Populations</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDGE Recommendations</td>
<td>Multiple Sclerosis</td>
</tr>
<tr>
<td></td>
<td>Stroke</td>
</tr>
<tr>
<td></td>
<td>Parkinson</td>
</tr>
<tr>
<td>Valid and Reliable</td>
<td>Community Dwelling Elders</td>
</tr>
<tr>
<td></td>
<td>CVA</td>
</tr>
<tr>
<td></td>
<td>PD</td>
</tr>
<tr>
<td></td>
<td>AD</td>
</tr>
<tr>
<td></td>
<td>Vestibular Disorders</td>
</tr>
<tr>
<td></td>
<td>OA</td>
</tr>
<tr>
<td></td>
<td>TBI</td>
</tr>
<tr>
<td></td>
<td>SCI</td>
</tr>
</tbody>
</table>

(www.rehabmeasures.org)

MDC • AD 4.09s (Ries, 2009)
  • Chronic CVA 2.9s (Flansbjer, 2005)
  • PD 4.85s (Dal Bello-Haas, 2011)

Fall Risk Cut Off Score
  • Community Dwelling Adults >13.5s (Shumway-Cook, 2000)
  • Parkinson's Disease > 11.5s (Nocera, 2013)
  • Hip OA > 10s (Arnold, 2007)
  • Vestibular >11.1s (Whitney et al., 2004)

Limitations

• Not specifically designed for use in acute care, significant floor effect. (de Morton, 2007)

• Can not be performed with individuals who require physical assistance.

• Sensitivity for determining fall risk in elders has been called into question. (Barry, 2014)

Six Minute Walk Test

American Thoracic Society
Statement: Guidelines for the Six Minute Walk Test
https://www.thoracic.org/statements/6minwalk.pdf
Overview

Instructions:
“The object of this test is to walk as far as possible for 6 minutes. You will walk back and forth in this hallway. Six minutes is a long time to walk, so you will be exerting yourself. You will probably get out of breath or become exhausted. You are permitted to slow down, to stop and to rest as necessary. You may lean against the wall while resting but resume walking as soon as you are able. You will be walking back and forth around the cones. You should pivot briskly around the cones and continue back the other way without hesitation. Now I’m going to show you. Please watch the way I turn without hesitation.”

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Populations</th>
</tr>
</thead>
</table>
| EDGE Recommendations | • Multiple Sclerosis  
|                   | • Stroke                                     
|                   | • Parkinson                                   |
| Valid and Reliable | • Stroke (Kosak & Smith, 2005)  
|                   | • PD (Garber & Friedman, 2003)               
|                   | • Survivors of Critical Illness (Adson, 2012) |
| MDC              | • Multiple Sclerosis: 76.2m (Learmonth, 2012) 
|                   | • CHF: 43m (O’Reilly, 1998)                 
|                   | • COPD: 54m (Redelmeier, 1997)              
|                   | • Post CIA in rehab: 54.1m (Fukl, 2008)     
|                   | • Alzheimer disease: 3.3m (Ries, 2009)      
|                   | • Idiopathic pulmonary fibrosis (MCID): 24m (du Bois R, 2011) |
| Availability of Normative Values | • Adults Aged 60-89 years (Steffen, 2002) |

American Thoracic Society Recommendations

<table>
<thead>
<tr>
<th>Indication</th>
<th>Population</th>
</tr>
</thead>
</table>
| Pre/Post Treatment Comparison | • Lung transplantation  
|                             | • Lung resection                                     
|                             | • Lung volume reduction surgery                         
|                             | • Pulmonary rehab                                      
|                             | • COPD                                                   
|                             | • Pulmonary hypertension                                
|                             | • Heart failure                                       
| Predictor of Morbidity and Mortality | • Heart failure  
|                             | • COPD                                                   
|                             | • Primary pulmonary hypertension                       
| Functional Status           | • COPD                                                   
|                             | • Cystic fibrosis                                      
|                             | • Heart failure                                        
|                             | • Peripheral vascular disease Fibromyalgia              
|                             | • Elders                                                 |
Limitations

- Not specifically designed for use in acute care
- Many hospitalized patients may have contraindications:
  - Absolute contraindications for the 6MWT include: unstable angina during the previous month and myocardial infarction during the previous month.
  - Relative contraindications include a resting heart rate of more than 120 bpm, a systolic blood pressure of more than 180 mmHg, and a diastolic blood pressure of more than 100 mmHg.

Orpington Prognostic Scale

Overview

- Motor deficit in arm Score
- Proprioception (eyes closed) - Locates affected thumb Score
- Balance Score
- Cognition (Hodkinson’s Mental Test) Score
Advantages | Populations  
--- | ---  
EDGE Recommendations | Stroke  
Reliable | (Rieck, 2005)

Predictive Score at 2 wks post-onset predicted D/C disposition in patients > 75yo  
- < 3.2: patients discharge home within 3 wks of stroke.  
- > 5.2: patients require long term care.  
- 3.2-5.2: patients benefit from intensive rehabilitation.
OPS at 48 hrs post-onset predicted length of hospital stay, place of discharge, and outcome at 6 months and 2 years.

Limitations  
- Only applies to one patient population  
- Not designed to measure change over time  
- Complicated scoring system:  
  - Lower score corresponding to better performance  
  - Need for some calculation  
  - Total Score = 1.6 +Motor +Proprioception +Balance +Cognition  
  - < 3.2 = Minor  
  - > 3.2 and less than or equal to 5.2 = Moderate  
  - > 5.2 = Major  
  (Lai, 1998)

Comfortable Walking Speed
Overview

• Also referred to as the 10 Meter Walk Test

• Ideally test is performed by asking the patient to not talk and focus on walking at a comfortable speed. The path should include a 5m warm-up phase, a 10m timed phase, and a 5m deceleration phase. (Fritz 2009)
  – It is acceptable to use a shorter course and a static start, however modifications must be documented. (Peel, 2012)

• Ideally perform 2-3 trials and use average time for increased reliability.

• Assistive devices can be used but must be kept consistent and documented from test to test.

Comfortable Walking Speed

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Populations</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDGE</td>
<td>Multiple Sclerosis</td>
</tr>
<tr>
<td></td>
<td>Stroke</td>
</tr>
<tr>
<td></td>
<td>Parkinson</td>
</tr>
<tr>
<td>Valid and Reliable</td>
<td>Acute Care Setting (Ostir, 2012)</td>
</tr>
<tr>
<td>Normative data</td>
<td>Community Dwelling Elders (Bohannon, 2011)</td>
</tr>
<tr>
<td>Predictive</td>
<td>Increase of 0.1m/s indicator for well-being and shorter LOS.</td>
</tr>
<tr>
<td></td>
<td>Decrease of 0.1m/s is associated with poorer health status, more disability, and longer hospital stays. (Purser, 2005)</td>
</tr>
</tbody>
</table>

Comfortable Walking Speed

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Populations</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDC</td>
<td>TBI: 0.05m/s (Watson, 2002)</td>
</tr>
<tr>
<td></td>
<td>Hospitalized Elders: 0.18m/s (Bradon, 2012)</td>
</tr>
<tr>
<td></td>
<td>Elders with AD: 0.09m/s (Ries, 2009)</td>
</tr>
<tr>
<td></td>
<td>Hip Fracture: 0.17m/s (Latham, 2008)</td>
</tr>
<tr>
<td></td>
<td>PD: 0.18m/s (Staffan, 2008)</td>
</tr>
<tr>
<td>MCID</td>
<td>Stroke (20-60 days s/p CVA): 0.16m/s (Tiszon, 2010)</td>
</tr>
<tr>
<td></td>
<td>SCI (Chronic): 0.06m/s (Musselman, 2014)</td>
</tr>
<tr>
<td></td>
<td>Community Dwelling Elders: 0.05m/s (Perera, 2008)</td>
</tr>
</tbody>
</table>
## Comfortable Walking Speed

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Populations</th>
</tr>
</thead>
</table>
| Discharge Destination Prediction | Hospitalized elders with cardiopulmonary, respiratory or gastrointestinal disease:  
  - >0.6m/s consistent with increased odds of d/c home.  
  - <0.4m/s is consistent with decreased odds of d/c home, longer LOS, poor functional outcome and slower recovery of physical health. (Ostir, 2012)  
  Patients recovering from open heart surgery:  
  - <0.4m/s associated with d/c to rehab.  
  - >0.4m/s associated with d/c to home. (Albany, 2015) |

<table>
<thead>
<tr>
<th>Population</th>
<th>Other Predictive Capability</th>
</tr>
</thead>
</table>
| Community Dwelling Elders | ADLS/IADLs  
  - <0.6m/s consistent with requiring assistance  
  Fall Risk  
  - <1.0m/s indications for intervention to reduce fall risk (Fritz, 2009) |
| Elders in Residential Care Facilities | Fall Risk  
  - <0.56m/s cut-off for increased risk of falling  
  - 80% sensitivity  
  - 89% specificity (Harada, 2005) |

## Limitations

- Cannot be performed with patients who require physical assistance.
Physical Function ICU Test-scored

Overview

• 4 Items
• < 5 minutes to administer
• May use an assistive device to achieve standing.
• Considers strength, endurance and level of assistance in grading.

Overview

• 1. Assistance required for sit to stand transfer. Using an assistive device is not defined as assistance, only physical assistance is recorded.
  – 0 = Unable 1 = Assist x 2 persons 2 = Assist x 1 person 3 = No assistance
• 2. Cadence (steps/min) while marching in place. Record the cadence (steps/min) and determine a score.
  – 0 = unable 1 = > 0-49 steps/min 2 = 50-79 steps/min 3 = 80 or greater steps/min
• 3. Shoulder Flexion Strength
  – Medical Research Council grading scale is used
• 4. Knee Extension Strength
  – Medical Research Council grading scale is used
Advantages

- Developed specifically for use in the acute care setting.

- In the ICU setting, this test has the most established psychometric properties in terms of reliability, validity and responsiveness. (Parry, 2015)

  – MCID 1.5 points on the 10 point interval scale
    (Denehy, 2013)

Limitations

- Cannot be used with patients who are unable to follow commands.

- Significant floor effect.

- No established cut off scores for D/C destination or functional prognosis.

New Mobility Score
Overview

- Evaluation of pre-fracture functional status
- Considers the following pre-operative activities
  - Indoor Walking
  - Outdoor Walking
  - Shopping
- Scoring
  - 0 = unable to perform task
  - 1 = with help from another person
  - 2 = with an aid
  - 3 = no difficulty, with no aid

Advantages

- Developed specifically for use in the acute care setting.
- Reliable/Valid (Kristensen, 2008; Parker, 1993)
  - Cut off scores with predictive capabilities:

<table>
<thead>
<tr>
<th>NMS Score</th>
<th>Predictive Capability</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 6</td>
<td>More likely to d/c to rehab.</td>
</tr>
<tr>
<td>&gt;6</td>
<td>More likely to d/c home.</td>
</tr>
<tr>
<td></td>
<td>Faster recovery of function.</td>
</tr>
<tr>
<td></td>
<td>Increased likelihood of regaining independent functional mobility within one year.</td>
</tr>
</tbody>
</table>

Limitations

- Can only be used in the hip fracture population.
- Can only be used with patients who do not have additional fractures.
- Can only be used on patients without weight bearing restrictions.
Dynamic Gait Index

Overview

- Gait level surface
- Change in gait speed
- Gait with horizontal head turns
- Gait with vertical head turns
- Gait and pivot turn
- Step over obstacle
- Step around obstacles
- Steps

Advantages

- Valid/Reliable for many populations:
  - Elders - including in acute setting (Jønsson, 2011)
  - Brain injury
  - Multiple Sclerosis
  - Parkinson's disease
  - Stroke (acute and chronic)
  - Vestibular disorders

(www.rehabmeasures.org)
Dynamic Gait Index

<table>
<thead>
<tr>
<th>Advantage</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDGE Recommendation</td>
<td>• Multiple Sclerosis</td>
</tr>
<tr>
<td></td>
<td>• Stroke</td>
</tr>
<tr>
<td></td>
<td>• Parkinson</td>
</tr>
<tr>
<td>MDC</td>
<td>• Chronic Stroke: 2.6 (Jonasson, 2007)</td>
</tr>
<tr>
<td></td>
<td>• Community Dwelling Elders: 2.9 (Romano, 2011)</td>
</tr>
<tr>
<td></td>
<td>• Multiple Sclerosis: 4.19-5.54 (Cattaneo, 2007)</td>
</tr>
<tr>
<td></td>
<td>• Parkinson’s Disease: 2.9 (Huang, 2011)</td>
</tr>
<tr>
<td></td>
<td>• Stroke (9 months out): 4.37 (Huang, 2010)</td>
</tr>
<tr>
<td></td>
<td>• Vestibular Disorders: 3.2 (Hart &amp; Hardman, 2008)</td>
</tr>
<tr>
<td>MCID</td>
<td>• Community Dwelling Elders</td>
</tr>
<tr>
<td></td>
<td>• DGI &lt;21, 1.8</td>
</tr>
<tr>
<td></td>
<td>• DGI &gt;21, 0.60 (Pardasaney, 2012)</td>
</tr>
</tbody>
</table>

Dynamic Gait Index

<table>
<thead>
<tr>
<th>Population</th>
<th>Fall Risk Cut-Off Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community-Dwelling Elders</td>
<td>&lt;19 (Wrisley, 2010)</td>
</tr>
<tr>
<td></td>
<td>• 67% Sensitivity</td>
</tr>
<tr>
<td></td>
<td>• 86% Specificity</td>
</tr>
<tr>
<td>Vestibular Disorders</td>
<td>&lt;19: 2.58 times more likely to have reported a fall in the previous 6 months (Whitney, 2000)</td>
</tr>
<tr>
<td>Multiple Sclerosis</td>
<td>&lt;12 (Cattaneo, 2006)</td>
</tr>
<tr>
<td></td>
<td>• 45% Sensitivity</td>
</tr>
<tr>
<td></td>
<td>• 80% Specificity</td>
</tr>
<tr>
<td>Parkinson's Disease</td>
<td>&lt;19 (Dibble, 2008)</td>
</tr>
<tr>
<td></td>
<td>• 64% Sensitivity</td>
</tr>
<tr>
<td></td>
<td>• 85% Specificity</td>
</tr>
</tbody>
</table>

Limitations

- Some items are somewhat subjective.
- Stair assessment may not be part of regular assessment for elders who do not have stairs at home.
Activity Measure for Post Acute Care – Short Form “6 Clicks”

Overview

• Developed as a functional outcomes system that can be used across post-acute care settings.

• Unlike traditional functional outcome measures, it is not disease or setting specific and can be widely used.

• Less than 10 minutes to perform.

• Can be scored based on observation of actual performance or professional judgment.
Advantages

• The inpatient short form was developed specifically for use in the acute care setting.
• Easy Conversion to G-codes.
• Appropriate for use in a variety of patient populations. (Jette, 2014)
• Can be helpful in discharge planning, given the cut-off scores. (Jette, 2014)
  – Score of 18 or more on initial evaluation is more consistent with home discharge.
  – Score of 17 or less is more consistent with discharge to rehab.

Limitations

– No consideration of social supports in discharge planning.

Performance Oriented Mobility Assessment
### Performance Oriented Mobility Assessment

<table>
<thead>
<tr>
<th>Balance Tests</th>
<th>Gait Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sitting Balance</td>
<td>Initiation of Gait</td>
</tr>
<tr>
<td>Arises From Chair</td>
<td>Step Length and Height</td>
</tr>
<tr>
<td>Attempts to Arise</td>
<td>Step Symmetry</td>
</tr>
<tr>
<td>Immediate Standing Balance</td>
<td>Step Continuity</td>
</tr>
<tr>
<td>Standing Balance</td>
<td>Path</td>
</tr>
<tr>
<td>Nudged</td>
<td>Trunk</td>
</tr>
<tr>
<td>Eyes Closed</td>
<td>Walking Stance</td>
</tr>
<tr>
<td>Turning 360 Degrees</td>
<td></td>
</tr>
<tr>
<td>Sitting Down</td>
<td></td>
</tr>
</tbody>
</table>

### Advantage Population

<table>
<thead>
<tr>
<th>Advantage</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDGE Recommendation</td>
<td>Parkinson</td>
</tr>
<tr>
<td>Valid and Reliable</td>
<td>MDC: 5 (Faber, 2006)</td>
</tr>
<tr>
<td>Established Cut-Off Scores</td>
<td>Elders at Risk for Falls</td>
</tr>
<tr>
<td></td>
<td>(Tinetti, 1986)</td>
</tr>
<tr>
<td></td>
<td>• 25-28: Low Fall Risk</td>
</tr>
<tr>
<td></td>
<td>• 19-24: Medium Fall Risk</td>
</tr>
<tr>
<td></td>
<td>• &lt;19: High Fall Risk</td>
</tr>
</tbody>
</table>

### Limitations

- Not specifically studied in hospitalized patients.
- MDC may be too difficult to achieve during short episode of care.
- Sensitivity has been called into question (62-66% by Faber, 2006).
Confusion Assessment Method - ICU

Overview
• Assesses 4 aspects of a patient's cognition and arousal while in the intensive care unit.
  – Acute change or fluctuating mental status
  – Inattention
  – Level of Arousal
  – Disorganized Thinking

Advantages
• Developed specifically for use in the acute care setting.
• Valid and Reliable (Gusmao-Flores, 2012)
• Prognostic indicators (Brummel, 2014; Balas, 2009; Abelha, 2013)
  • CAM ICU positive is consistent with increased risk for ADL dependency up to 1 year.
  • CAM ICU positive is consistent with increased risk for discharge to location other than home.
Limitations

- Provides measurement at the level of body structure and function.
- Not as valid or reliable for use outside of the ICU setting.

What’s Next?

Ongoing Process

- Continually update EMR templates for existing measures with new psychometric information.
- Plan to continually add new measures based on new evidence or based on suggestions from staff based on difficulty in using current measures in certain populations.
- Continue to provide training and education in measures less commonly used.
Questions?

Bibliographic References

BACKGROUND ARTICLES
• Manns, Patricia J., Amy V. Norton, and Johanna Darrah. “A Cross-Sectional Study to Examine Evidence-Based Practice Skills and Behaviors of Physical Therapy Graduates: Is There a Knowledge to Practice Gap?” Physical therapy (2014)

Breaking Down Barriers: Utilization of Standardized Measures In Acute Care

February 18th, 2016

Knowledge Translation

- Canadian Institute for Health Research. Knowledge Translation, 2013

NEW MOBILITY SCORE


AM-PAC


COMFORTABLE WALKING SPEED

Breaking Down Barriers: Utilization of Standardized Measures In Acute Care

February 18th, 2016

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**Dynamic Gait Index**


**Additional Resources**

- Knowledge Translation
  - April 2015 PTJ Special Series
- Standardized Tests and Outcome Measures
  - [http://www.neuropt.org/professional-resources/neurology-section-outcome-measures-recommendations](http://www.neuropt.org/professional-resources/neurology-section-outcome-measures-recommendations)
  - [http://www.rehabmeasures.org](http://www.rehabmeasures.org)
  - [http://www.samuelmerritt.edu/files/physical_therapy/AcuteCareMeasurePacket.pdf](http://www.samuelmerritt.edu/files/physical_therapy/AcuteCareMeasurePacket.pdf)
  - [http://guidetoptpractice.apta.org/content/1/SEC4.body](http://guidetoptpractice.apta.org/content/1/SEC4.body)

**APTA Evaluation Database to Guide Effectiveness**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Stroke</th>
<th>TBI</th>
<th>Parkinson's</th>
</tr>
</thead>
<tbody>
<tr>
<td>6MWT</td>
<td>R</td>
<td>HR</td>
<td>LS/UR</td>
</tr>
<tr>
<td>CW5</td>
<td>HR</td>
<td>LS/UR</td>
<td></td>
</tr>
<tr>
<td>TUG</td>
<td>HR</td>
<td>LS/UR</td>
<td></td>
</tr>
<tr>
<td>POMA</td>
<td>LS/UR</td>
<td>HR</td>
<td></td>
</tr>
<tr>
<td>Sit to Stand</td>
<td>HR</td>
<td>LS/UR</td>
<td></td>
</tr>
<tr>
<td>TUG</td>
<td>HR</td>
<td>LS/UR</td>
<td></td>
</tr>
</tbody>
</table>

- **HR**: Highly Recommended
- **R**: Recommended
- **LS/UR**: Reasonable to use, but limited study in target group/Unable to Recommend
- **NR**: Not Recommended

*(http://www.neuropt.org/professional-resources/neurology-section-outcome-measures-recommendations)*