Outcome Measurement

**Learning Objectives**

- Be able to describe the importance of outcome measurement in rehabilitation
- Be able to articulate the minimum number of measurements needed to show the effectiveness of an intervention
- Be able to explain the difference between validity and reliability of a specific instrument
- Be able to summarize the rationale behind certification requirements associated with use of specific measures
- Be able to give an example of measures appropriate to assess changes in individuals with the most severe impairment
- Be able to discuss the 4 measures used in acute rehabilitation
- Be familiar with the 4 measures used in post-acute settings or in the community
- Gain an understanding of specialty instruments used to measure quality of life
- Be able to identify web resources to access instruments for outcome measurement in rehabilitation

**Measurement**

**Definition:** The assignment of numbers to objects or events

- Importance of measurement
- Importance of standard measurements

**Measurement Basics**

- Minimum of 2 measurements required:
  - Baseline (before treatment)
  - After treatment

**Example 1:**

Time 1: A woman receives a score of 1 on the Auditory Function Scale of the JFK Coma Recovery Scale-Revised; startles to sound

Intervention: The individual is prescribed medication to stimulate recovery

Time 2: Two weeks later the individual receives a score of 3, indicating that he/she moves to verbal command in a reproducible manner
Measurement Terms

- Psychometrics
- Standardized assessment
- Likert scale
- Widely accepted

Considerations When Choosing a Measure

- Reliability
- Validity
- Timing
- Cost
- Expertise & Training
- Common Data Elements

Choosing a Measure: Reliability and Validity

- Reliable; Not Valid
- Not Reliable; Not Valid
- Low Reliability; Low Validity
- Reliable; Valid

Choosing a Measure: Timing

- Early Measures
  - Glasgow Coma Scale
  - Abbreviated Injury Scale
  - Loss of Consciousness
  - JFK Coma Recovery Scale Revised
  - Measure of Post-Traumatic Amnesia
  - Glasgow Outcome Scale, Extended Scale
- Acute Measures
  - Functional Independence Measure®
  - Functional Assessment Measure
  - Disability Rating Scale
  - Level of Cognitive Functioning Scale
- Post-Acute Measures
  - Craig Handicap Assessment and Reporting Technique
  - Mayo Portland Adaptability Inventory
  - The Participation Assessment with Recombined Tools - Objective

Examples Measures: Acute Measures Used Early After Injury

- The Glasgow Coma Scale

Examples Measures: Acute Setting

- The Rancho Los Amigos Level of Cognitive Functioning Scale
Examples Measures
Post Acute Setting
The Mayo-Portland Adaptability Inventory (MPAI-4)

Specialty Measures
- Quality of Life Measures
  - World Health Organization (Quality of Life Scale)
  - Measures of Neuropsychological Functioning
    - Detailed testing used to describe a wide variety of brain functions
    - Requires considerable skill and training
    - Often requires advanced academic degrees
      - Time in neuropsychologists, school psychologists
  - Measures of Depression
    - Beck Depression Inventory
    - Patient Health Questionnaire
- Measures of Anxiety
  - Anxiety is a common issue in brain injury
  - Post traumatic stress disorder and obsessive compulsive disorder are common and strongly related to anxiety
  - Family Functioning
    - Brain injury can be life-changing for the family unit
  - Pediatrics

Learning Objectives
Be able to discuss factors that contribute to poor employment outcomes in persons with brain injury
Be able to describe Wehman’s model of supported employment for persons with TBI
Be familiar with the 4 return-to-work approaches
Be able to summarize the concept of supported employment
Be able to give an example of workplace supports to help a worker with TBI

Return to Work After Brain Injury
Devastating outcome for persons with severe TBI
- Employment Rate Post TBI reported to be less than 10%–40%
- Worse rates for more severe injuries
- What constitutes “work” has been a problem in return to work studies as there have been varied definitions, including:
  - Tryouts
  - Volunteer work
  - Homemaking for women who had previously been in competitive employment outside the home

Factors that contribute to poor employment include:
- More severe injury
- Older age at time of injury
- Male
- Lower level of preinjury educational or occupational status
- Lack of social support
- Significant physical, psycho-social or cognitive impairments
- Member of a minority race
- History of substance abuse

RTW is the gold standard in measuring successes of rehabilitation
- Return to Work Models
  - Comprehensive Integrated Day Treatment
  - Vocational Case Coordination
  - Resource Facilitation
  - Supported Employment
Services Offered by Employment Specialists

- Spends time getting to know job seeker
- Practical or functional approach to assessment
- Situational assessments
- Makes employer contacts on the job seeker's behalf
- Offers assistance in the job seeking and job addressing if needed
- Conducts job analysis
- Connections helps to make a job match
- Arranges a meeting with the employer and job seeker to make the match
- Provides on the job site training and support once the person is hired
- Models social interactions with staff for job seeker to promote work
- Conducts data to evaluate and provide intervention and job coaching
- Provides off the job support as needed to help problem solve
- May include public transportation, social security, SSA, haze clock
- Provides ongoing long term follow up
- Skilled touch with employer
- If needed, provides additional on the job site training and support
- Collects data to determine when to fade instruction and job coaching
- Provides ongoing long term follow up
- Stays in touch with employee and employer
- If needed, provides additional on the job site training and support

State Funded Vocational Rehabilitation Service Model

Rehab Act of 1973 provides Federal grants to States to operate comprehensive programs of Vocational Rehabilitation

Services and Supports

- Assessment
- Vocational counseling
- Guidance and referral to needed services
- Voc training including on the job training
- Personal assistance services
- Rehab technology
- Job placement
-Supported employment

Work Supports to Enhance Learning and Performance

- Remembering
- Attention and concentration
- Executive functioning
- Socially inappropriate behavior
- Use compensatory memory strategies
- Create or use environmental supports to reduce work place distractions
- Use prompts to start and complete task
- Frequent and regular feedback and modeling

Practical Strategies to Enhance Outcomes

- Coordinated system of care and community re-entry
- Neuropsychological evaluations and vocational assessment
- Individualized services to meet complexities of individual situation
- One-time vocational service is often inadequate
- Supported employment requires funding for long-term follow up
- Providing vocational support to persons with TBI is often complex and multifaceted
Participation

World Health Organization’s (WHO) Biopsychosocial Model
- Participation
- Disability
- Activities
- Activity limitations
- Participation restrictions

Learning Objectives
- Be able to articulate the primary outcome of rehabilitation
- Be able to distinguish between activities and participation
- Be able to identify the 3 tools used to measure participation
- Be able to explain the concept of community enfranchisement

Measures of Participation
- Mayo Portland Adaptability Inventory 4 - Participation Index
- Craig Handicap Assessment and Reporting Technique—Short Form (CHART-SF)
- Participation Assessment with Recomposed Tools-Objective (PART-O)

Current Knowledge
- Participation is considered one of the primary outcomes of rehabilitation

Future Directions
- A clear, operational definition of participation has yet to be agreed upon
- The extent to which a person feels they have control over their level of participation, feels a part of the community, and feels valued, also known as community enfranchisement, is currently being studied
- Future research should also focus on ways to improve effectiveness of interventions related to participation