

Outcome Measures
DOCUMENT CHANGES IN PATIENT'S FUNCTIONAL STATUS / QUALITY OF LIFE



Learning Objective

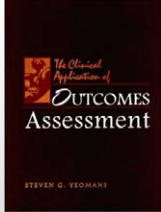
- Apply appropriate Outcome Assessment Measures in the evaluation and treatment of traumatic / atraumatic neuromusculoskeletal injuries / disorders

1. Etiology of Complaint
 - a. Onset, Severity, frequency, duration
2. Health History
3. Current Subjective Complaints
4. Current Objective Clinical Findings
5. Diagnosis
6. Treatment Plan
7. Measurements of Patient Improvement

Medical Necessity
Provider must document...

Era of Outcome Assessment

- "Outcomes in clinical practice provide the mechanism by which the health care provider (HCP), the patient, the public, and the payer are able to assess the end results of care and its effect upon the health of the patient and society."



• S. Yeomans. The Clinical Application of Outcome Assessment. p. 4, 2000)

Subjective vs. Objective


- "What matters most to patients and payers is the change in functional health status (e.g., quality of life, ADL, return to work, and economic efficiency)"




• S. Yeomans. The Clinical Application of Outcome Assessment. p. 11, 2000)


Outcomes Criteria

- Utility: Is it Useful?
- Reliability: Is it dependable?
- Validity: Does it do what it is supposed to do?
- Sensitivity: Can it identify patients with a condition?
- Specificity: Can it identify those that do not have the condition?
- Responsiveness: Can it measure differences over time?

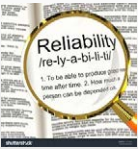


<ol style="list-style-type: none">1. Utilize subjective / objective tools.2. Score the tools at the initial visit to establish baseline measures.3. Repeat the instrument after 2-4 week intervals to track the effects of treatment changes.4. Base clinical decisions on the outcome results.	<p>4 Steps to Become Outcome Based</p>
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<p>Individual Outcome Measures: Assess every 2-4 weeks</p>	
<ul style="list-style-type: none">• HCP Driven (Objective)<ul style="list-style-type: none">• Observation• ROM & Flexibility Tests• Palpation Findings• Neurological Findings• Strength & Endurance Tests• Functional Capacity Evaluations• Patient Driven (Subjective)<ul style="list-style-type: none">• Functional Outcome Questionnaires<ul style="list-style-type: none">• Neck Disability Index, Revised Oswestry, Functional Rating Index, Headache Disability Index, etc...• Pain Scales• Pain Drawings• Psychometric	

<p>Subjective Questionnaires</p>	
<ul style="list-style-type: none">• Subjective outcome assessment information is gathered by the patient in self-administered questionnaires and scored by either the:<ul style="list-style-type: none">• Health Care Provider• Staff Members• Computer	

Subjective Questionnaires




- In spite of the definition associated with the term "subjective", these **pen-and-paper tools** have been described as very **Valid and Reliable** - in many cases more so than many of the "objective" tests that HCPs have relied upon for years.
- Chapman-Smith (1992); Hansen (1994); Mootz (1994)

Subjective vs. Objective


- "It must be emphasized that although the term "subjective" carries negative connotations, the reliability / validity data published regarding these methods of collecting outcomes is exceptional, typically out-performing the test-retest reliability and validity of most "objective" physical performance tests (Chapman-Smith 1992)."

Questionnaires
OUTCOME MEASUREMENT TOOLS




General Health Questionnaires (GHQ)

- May benefit from the use of a GHQ because it is not condition-specific and, therefore, can be applied to virtually any complaint (Yeomans SG. The Clinical Application of Outcomes Assessment, Stamford Connecticut, Appleton & Lange, 2000)



Application of General Health Questionnaires (GHQ)

- Initial Presentation
 - Baseline
 - Identify Problem(s) for Management
- Regular Intervals
- Plateau / Discharge
- Six Months after Discharge
 - Evaluate Long Term Benefits

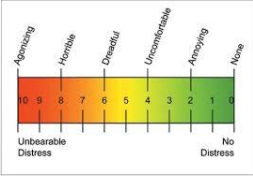


Condition-Specific Outcomes

- Over 40 low back functional questionnaires exist with 5 identified as "Gold Standard"
 - (Kopac and Estelle, 1995)
- Sickness Impact Profile (Bergner et al, 1981)
- Roland-Morris Disability Questionnaire (Roland and Morris, 1983)
- Oswestry Low Back Pain Disability Questionnaire (Fairbank et al, 1980)
- Million Visual Analogue Scale (Million et al, 1982)
- Waddell Disability Index (Waddell, 1984)


Pain Perception

- Visual Analogue Scales
 - Reliable and Valid (Jensen and Karoly, 1993)
 - Advantages over other measurement methods (Scott and Huskisson, 1976; Price et al., 1994).

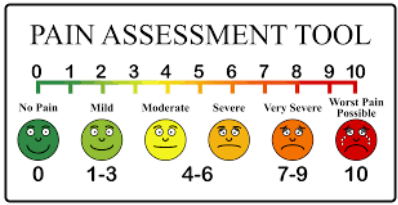


Quadruple Visual Analogue Scale (QVAS)

- Four Specific Factors
 - Current Pain Level
 - Average or Typical Pain Level
 - Pain Level at its Best
 - Pain Level at its Worst
- Final Score = Average x 10
 - Range 0-100
- Von Korf et al, 1992



Wong-Baker Scale



Revised Oswestry

- Test has been around for 25 years and is considered the "Gold Standard" of low back functional outcome tools.
- Extremely important tool that researchers and disability evaluators use to measure a patient's permanent functional disability.
- One of the principal condition-specific outcome measures used in the management of spinal disorders.



Why Revised Oswestry?

- **Retitled Section 8**
 - Now identified as "Social Life"
 - Originally entitled "Sex Life" and was left blank quite often by patients.
 - In the revised version, all ten sections are completed more often than in the original version.



▪ Hudson-Cook N, Tomes-Nicholson K, Breen AC. A Revised Oswestry Back Disability Questionnaire. Manchester Univ Press, 1989


Oswestry: Score Interpretation

- 0%-20% = Minimal Disability
- 20%-40% = Moderate Disability
- 40%-60% = Severe Disability
- 60%-80% = Crippled
- 80%-100% = Bedridden




▪ Fairbank JC, Pynsent PB. "The Oswestry Disability Index". Spine 2000;29(22):2940-2952

Revised Oswestry: Best Practice



- Baseline
- Reassess every 2-4 weeks
- 5 point change required to be minimally clinically significant or meaningful.
- Provider should avoid “treating to zero” as it is not clinically supportable.
- According to Erhard et al (1994), a score of 1.1% may be used as an appropriate cut-off score for HCP to consider for Discharge or RTW in uncomplicated LBP.



Neck Disability Index (NDI)

Designed by modifying the Oswestry Low Back Pain Disability Questionnaire

Neck Disability Index (NDI)

- **J Manipulative Physiol Ther 2008(Sep):31(7):491-502**
• Howard Vernon, DC, PhD
- **BACKGROUND:** Published in 1991, the **Neck Disability Index (NDI)** was the first instrument designed to assess self-rated disability in patients with neck pain. This article reviews the history of the NDI and the current state of the research into its psychometric properties – reliability, validity, and responsiveness – as well as its translations. Focused reviews are presented into its use in studies of the prognosis of whiplash-injured patients as well as its use in clinical trials of conservative therapies for neck pain.
- **SPECIAL FEATURES:** The **NDI** is a relatively short, paper-pencil instrument that is easy to apply in both clinical and research settings. It has strong psychometric characteristics and has proven to be highly responsive in clinical trials. **As of late 2007, it has been used in approximately 300 publications;** it has been translated into 22 languages, and it is endorsed for use by a number of clinical guidelines.
- **SUMMARY:** The **NDI** is the **most widely used and most strongly validated instrument for assessing self-rated disability in patients with neck pain.** It has been used effectively in both clinical and research settings in the treatment of this very common problem.

Functional Rating Index

Scale ^a	Anatomic Region	Measures	Validated	Responder Burden		Age (yr)
				Clinician	Patient (no. of questions)	
DASH ^b	Shoulder, arm, and hand	Function (bilateral)	Yes	None	38	18-65
ASES ^c	Shoulder	Pain, instability, activities of daily living	Yes	Rarely used	10	20-61
Constant ^{d,e}	Shoulder	Function	Yes	6 items	2	14-85

Shoulder Outcome Measurements

Upper Extremity-Specific Measures of Disability and Outcomes in Orthopaedic Surgery

Scale ^a	Anatomic Region	Measures	Validated	Responder Burden		Age (yr)
				Clinician	Patient (no. of questions)	
DASH ^b	Shoulder, arm, and hand	Function (bilateral)	Yes	None	38	18-65
ASES ^c	Elbow	Pain, function, strength, range of motion, stability, and patient satisfaction	Yes	38 items	19	

Elbow Outcome Measurements

Upper Extremity-Specific Measures of Disability and Outcomes in Orthopaedic Surgery

Scale ¹	Anatomic Region	Measures	Validated	Clinical	Patient (no. of questions)
DASH ²	Shoulder, arm, and hand	Function (bilateral)	Yes	None	38
Boston Carpal Tunnel Questionnaire ^{5,6}	Hand	Pain, sensibility, weakness, and function	Yes	None	19
Jabson-Taylor Hand Function Test ^{7,8}	Hand	Hand functional task	Yes	Time Tasks	7 tasks

Hand Outcome Measurements
Upper Extremity-Specific Measure of Disability and Outcomes in Orthopedic Surgery

1. Scale: 0 = best, 100 = worst. 2. DASH: Disability of the Arm, Shoulder and Hand. 3. Boston Carpal Tunnel Questionnaire. 4. Jabson-Taylor Hand Function Test. 5. Validated: Validated in a peer-reviewed journal. 6. Clinical: Clinical use. 7. Time Tasks: Time to complete task. 8. Patient: Number of questions.

QuickDASH-9

INSTRUCTIONS: This questionnaire asks about your symptoms as well as your ability to perform certain activities. Please answer every question based on your condition in the last week. To indicate the appropriate number, if you did not have the opportunity to perform an activity in the last week, please mark your best estimate of what response would be the most accurate. A dash (-) indicates what time in a day you used to perform the activity, please answer based on your ability regardless of how you perform the task.

Mark your ability to do the following activities in the last week by circling the number below the appropriate response.

Activity	0	1	2	3	4
1. Open a light jar or lid					
2. Do heavy household chores (e.g., wash walls, floors)					
3. Carry a shopping bag or briefcase					
4. Move your trunk					
5. Use a ladder or set stool					
6. Recreational activities in which you take some force to impact through air or through a ball (e.g., golf, tennis, badminton, etc.)					

7. During the past week, to what extent has your pain interfered with your normal activities with family, friends, neighbors or groups?

0	1	2	3	4
0	1	2	3	4

8. During the past week, were you limited in your work or other regular activities as a result of your arm, shoulder or hand pain?

0	1	2	3
0	1	2	3

9. Pain, stiffness or hand pain

0	1	2	3	4
0	1	2	3	4

10. QuickDASH scores are calculated as follows: (sum of items 1-9) x 1.25. A missing response is coded as the average of the remaining.

QuickDASH
Quick Upper Extremity Outcome Measure

LOWER EXTREMITY FUNCTIONAL INDEX

PATIENT NAME: _____ **REF ID:** _____

Please complete this questionnaire for the patient's condition in the last week. Mark the number of items for each activity.

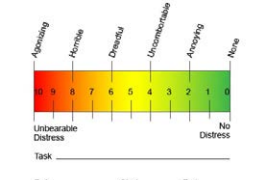
Mark "0" if you were not able to do the activity at all.

Activity	0	1	2	3	4
1. Walk on level ground					
2. Walk on uneven ground					
3. Climb stairs					
4. Stand for 15 minutes					
5. Stand for 30 minutes					
6. Stand for 45 minutes					
7. Stand for 1 hour					
8. Stand for 1.5 hours					
9. Stand for 2 hours					
10. Stand for 3 hours					
11. Stand for 4 hours					
12. Stand for 5 hours					
13. Stand for 6 hours					
14. Stand for 7 hours					
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103. Stand for 96 hours					
104. Stand for 97 hours					
105. Stand for 98 hours					
106. Stand for 99 hours					
107. Stand for 100 hours					

Lower Limb Functional Index

Clinical Appropriate Outcome Measures

- Pain
 - Visual Analog Scale
 - McGill Pain Questionnaire
 - Pain Drawing
- Cervical
 - Neck Disability Index
- Lumbar
 - Revised Oswestry Pain Questionnaire
- Axial Spine
 - Functional Rating Index




Task _____
Date _____ Start _____ End _____

Outcome Assessment Tools

- Important to remember to utilize the same outcome assessment tool through the course of case management with each patient.



Outcome-Based Practice: Clinical Decision Making



- "Correlating this information to the patient's specific clinical data and then making a clinical decision based on the results, represents a difficult but important step in making the 'paradigm shift' into becoming an 'outcome-based' practice."
- (Yeomans SG: The Clinical Application of Outcomes Assessment, Stamford Connecticut, Appleton & Lange, 2000)

Outcome Measures: Numeric Pain Scales

- Effective Treatment
 - Justify Existence
- Saves Money
- Saves Time
- Faster RTW
- Decreases Socio-Psychological Problems
 - Prevent Physician Dependence

Point	Series 1	Series 2
1	9	6
3	7	4
5	5	7
7	4	3
9	3	6
11	2	4
13	1	6
15	1	4

Functional Assessment Questionnaires

NDI Score	Frequency
0	90
4	45
8	20
12	10

Importance of Individual Outcome Measurements

- Outcome measures allow modification of treatment algorithms on an individualized basis.
- Every patient and every injury is different!
- Most defense IIME / RR physicians utilize prospective risk analysis when evaluating a retrospective situation.

A normal distribution curve with a red center and green/blue tails.
