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

Medical Necessity

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
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?
4 Steps to Become Outcome Based

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.

Individual Outcome Measures: Assess every 2-4 weeks

- HCP Driven (Objective)
  - Observation
  - ROM & Flexibility Tests
  - Palpation Findings
  - Neurological Findings
  - Strength & Endurance Tests
  - Functional Capacity Evaluations

- Patient Driven (Subjective)
  - Functional Outcome Questionnaires
  - Neck Disability Index, Revised Oswestry, Functional Rating Index, Headache Disability Index, etc.
  - Pain Scales
  - Pain Drawings
  - Psychometric

Subjective Questionnaires

- Subjective outcome assessment information is gathered by the patient in self-administered questionnaires and scored by either the:
  - 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)."
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" (Singore and Resende, 1999)
- 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)
- Millon Visual Analogue Scale (Millon et al., 1992)
- Waddell Disability Index (Waddell, 1994)
Pain Perception

• Visual Analogue Scales
  - Reliable and Valid (Jensen and Nancey, 1992)
  - 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 Korff et al, 1992

Wong-Baker Scale

PAIN ASSESSMENT TOOL

0 1 2 3 4 5 6 7 8 9 10

• No Pain
• Mild
• Moderate
• Severe
• Very Severe
• Type IV Pain

0 1-3 4-6 7-9 10
McGill Pain Questionnaire
Verbal Rating Scale

Short-Form McGill Pain Questionnaire
Includes 7 additional symptoms related to neuropathic pain

Revised Oswestry
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.

Oswestry: Score Interpretation

- 0%-20% = Minimal Disability
- 20%-40% = Moderate Disability
- 40%-60% = Severe Disability
- 60%-80% = Crippled
- 80%-100% = Bedridden
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 11% may be used as an appropriate cut-off score for HCP to consider for Discharge or RTW in uncomplicated LBP.

Neck Disability Index (NDI)

- J Manipulative Physiol Ther 2008;31(7):491-602
- 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 provided on its use in studies of the prognosis of whiplash-injured patients as well as its use to evaluate changes in disability after conservative and surgical therapies for neck pain.

SPECIAL FEATURES: The NDI is a relatively short, paper-pencil instrument that is easy to apply, 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 is recommended for use by a number of clinical guidelines.

SUMMARY: The NDI is the most widely used and most strongly validated instrument for measuring self-rated disability in patients with neck pain. It has been used in clinical and research settings to evaluate changes after a common problem.

According to Erhard et al. (1994), a score of 11% may be used as an appropriate cut-off score for HCP to consider for Discharge or Return to Work (RTW) in uncomplicated Low Back Pain (LBP).
TABLE I
Upper Extremity Outcome Measures for the Shoulder

<table>
<thead>
<tr>
<th>Scale</th>
<th>Assessment Region</th>
<th>Measurable</th>
<th>Validated</th>
<th>Decision</th>
<th>Patient</th>
<th>Age Groups</th>
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<tbody>
<tr>
<td>SASHF</td>
<td>Shoulder and Elbow</td>
<td>Yes</td>
<td>Yes</td>
<td>0-70</td>
<td>15-65</td>
<td></td>
</tr>
<tr>
<td>ASES</td>
<td>Shoulder and Elbow</td>
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<td>Yes</td>
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<td>15-65</td>
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<tr>
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<td>Shoulder</td>
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<td>Yes</td>
<td>0-70</td>
<td>15-65</td>
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</tr>
</tbody>
</table>

TABLE II
Upper Extremity Outcome Measures for the Elbow

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<thead>
<tr>
<th>Scale</th>
<th>Assessment Region</th>
<th>Measurable</th>
<th>Validated</th>
<th>Decision</th>
<th>Patient</th>
<th>Age Groups</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Yes</td>
<td>0-70</td>
<td>15-65</td>
<td></td>
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<tr>
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<td>Elbow</td>
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<td>Yes</td>
<td>0-70</td>
<td>15-65</td>
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</table>
Hand Outcome Measurements
Upper Extremity Outcomes Measure for the Hand

<table>
<thead>
<tr>
<th>CGN</th>
<th>Score</th>
<th>Functional Status</th>
<th>Reliability</th>
<th>Validity</th>
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<td>Good</td>
<td>Yes</td>
<td>Note</td>
<td>Yes</td>
</tr>
</tbody>
</table>

QuickDASH
Quick Upper Extremity Outcome Measure

Lower Limb Functional Index

[Table and images of measurement tools and scales]
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

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."

**Outcome Measures:**

**Numeric Pain Scales**

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

**Functional Assessment Questionnaires**

**Neck Disability Index**

**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 IME / RR physicians utilize prospective risk analysis when evaluating a retrospective situation.