Clinical Importance:
The OMERACT Perspective

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Background

- **OMERACT**: Outcome MEasurement in Rheumatoid Arthritis Clinical Trials.
  - Meet every two years re: outcomes in RCT’s
  - Set research agenda for subsequent two years

- **OMERACT 5**: Toulouse, May 2000.
  - MCID determination for core set of outcomes in RA, OA, OP, Back pain
  - Based on “the Beaton cube”
OMERACT Filter

- All measures, approaches must pass the OMERACT Filter…. (Boers, 1998)
  - Truth
  - Discrimination
  - Feasibility

- Same filter holds for trying to find MCID
Approach to MCID

1) What methods are out there?
2) How do you find those studies in literature searches?
3) What are they able to tell us about important changes in core set of measures?
4) Future directions – LDAS.
1. What are the methods? (Wells, 2001)

- Patient perspectives.
  - Comparison to global rating (Jaeschke, 1989; Juniper, 1994)
  - Patient conversations (Redelmeier, 1993)

- Clinician perspectives
  - Consensus groups
  - Paper patient ratings (Goldsmith, 1993)
  - Patient scenarios
  - Prognostic rating (Stratford, 1998)

- Data driven (SEM, \( \frac{1}{2} \) standard deviation)

- Ability to discern important improvements
  - Achievement of treatment goals (Riddle, 1998)
  - Improvement criteria (achieving ACR20, EULAR/DAS)
Do methods matter? …Yes

MCID value for pain NRS

Method used
- Jaeschke
- Juniper
- SEM
- 1/2 std dev
- Jaeschcke_impt
- Juniper_impt
- 0.5/item

test-retest = 0.85 (Gaston-Johannson, 1996),
Minimal detectable change (95%) = 1.96*1.41*s dev’n*sqrt(1-0.85) = 2.5
Does it matter? …Yes.

<table>
<thead>
<tr>
<th>MCID Approach</th>
<th>MCID Value</th>
<th>Number “improved”*</th>
<th>% of sample “improved”</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEM(t-rt)</td>
<td>2.2</td>
<td>67</td>
<td>40.6</td>
</tr>
<tr>
<td>½ std dev’n</td>
<td>1.15</td>
<td>85</td>
<td>50.9</td>
</tr>
<tr>
<td>0.5/item</td>
<td>0.5</td>
<td>120</td>
<td>72.7</td>
</tr>
<tr>
<td>Jaeschke</td>
<td>2.01</td>
<td>67</td>
<td>40.6</td>
</tr>
<tr>
<td>Juniper</td>
<td>2.3</td>
<td>85</td>
<td>50.9</td>
</tr>
<tr>
<td>Juniper + impt</td>
<td>2.4</td>
<td>67</td>
<td>40.6</td>
</tr>
<tr>
<td>MDC-95</td>
<td>2.5</td>
<td>67</td>
<td>40.6</td>
</tr>
</tbody>
</table>

* “improved” = change in pain score > this MCID threshold, n=172
2) Finding MCID studies in literature

- MCID most often found in studies of responsiveness

- OMERACT approach was to use “the Cube” to sort through responsiveness studies for those addressing important change.
Use of the cube.

- Finding important changes in studies of responsiveness (Beaton, 2001)
  - Kind of change defined by 3 features
  - Decided: Only those specifically addressing important change are of interest to MCID determination.
Features defining change

**Setting:** Who is the focus?
- groups
- individuals

**Which scores are contrasted?**
- differences between?
- changes within?
- both?

**What kind of change?**
- Minimum potentially detectable
- Minimum actually detectable beyond error
- Observed in those estimated to differ/to have changed
- Observed in those estimated to have an important difference/change
Change/differences in studies of responsiveness

**Setting:** Who is the focus?

1. - group

2. - individual

Which?

1. differences between

2. changes within

3. both: differences between changes within

What kind of change/difference

1. Minimum potentially detectable
2. Minimum actually detectable beyond error
3. Observed in population
4. Observed in those estimated to differ/to have changed
5. Observed in those estimated to have an important difference/change
Cells in the cube

- Each cell in cube = valid type of change/difference for a study of responsiveness
- Not every cell can tell us about MCID.
3. What can these studies tell us about MCID

- Studies of responsiveness fit into appropriate cell
- Focused only on those addressing important change.
- Therefore focus on the “far right” end of the cube to find studies addressing important change
Observed in those estimated to differ/
changed

Minimum actually detectable beyond error

Type of Change/Difference

Both: differences between group change
within
between
Individual
Group

Source of info on Important change

Cells for RCT’s
**Roland-Morris Scale Findings**  
Bombardier, 2001

### Important change

<table>
<thead>
<tr>
<th></th>
<th>Individual</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Both: differences between change within</strong></td>
<td>✭ (consensus: 2-3, not &gt;5)</td>
<td>✭</td>
</tr>
</tbody>
</table>
| **Within**     | Stratford: 2-8  
Riddle: 3-13  
[Stratford: 5 for scores 6-20] | Stratford: 7.2  
Riddle: 7.6  
[Deyo: 4.4] |
| **Between**    |            |       |

[ ] – studies where same method was considered important by other authors
MCID’s

- Varied in magnitude across….
  - Different methods
  - Different baseline scores (Riddle 98; Stratford 98; Stucki, 96, Hagg 2003)
  - Positive versus negative change (Hagg, 2003)

- Focus was limited to…
  - minimal change
  - Change alone, not where people ended up (Farrar, 2000; Jacobson, 1999)
Change versus final state

- Change > MCID, but not healthy
- Change < MCID, remain either below/above/above cross threshold
- Change that is > MCID, plus has put person into “healthy” state

→ Increasing Health →
New directions for OMERACT

- **2000 vote** (Wells, 2001):
  - Look at major clinically relevant/important differences rather than minimal
    - Is minimal enough?
    - Link to clinical situations: ie, change related to successful analgesic use (Lee, 2003; Farrar, 2003)
  - Look at final state – what level is a success?
    - Use patient and consensus opinion
4. New at OMERACT → LDAS

- OMERACT 5-7 (2000-4)

- **LDAS: Low Disease Activity States**
  - “that state which is deemed a useful target of treatment by both physician and patient, given current treatment possibilities and limitations”
  ~ OMERACT 6

- defines the final state ~ where people land
  - Not complete remission (DAS28 < 2.6)
LDAS

- LDAS established for each of core set measures
  - ie. NRS Pain < 2/10
  - Others: swollen joints, tender joints, HAQ, physician global, patient global, ESR

- **Successful response**: complete remission (defined)
  OR 5/7 core set measures achieve LDAS

  **aggregation across measures.**
Lessons from OMERACT?

- Be aware of methodological MCID issues
  - Not as variable for Pain NRS, more so for HRQOL
  - MCID method used, baseline score, +ve vs. –ve change

- Consider the most appropriate target?
  - Measurement error? Or MCID? Or Major response?

- Consider exploring LDAS concept – final state across 5/7 measures
  - Aggregation also allows people to be “responders” with coping, adjusting, adaptation – not just pain elimination
Summary

- “Science should be kept as simple as possible but no simpler” ~ Albert Einstein.

- MCID is elusive, but important
  - likely context-specific
  - look for consistency across methods, timing, treatments, etc to increase confidence in a single MCID value