



**2009 OTA Annual Meeting
Manchester Grand Hyatt
San Diego, CA**

Basic Science Focus Forum

Symposium VI: Function Matters! Understanding Functional Outcomes in Orthopaedic Trauma Research

Douglas D, Level I

**10:00am – 11:10am
Thursday, October 8, 2009**

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Marc F. Swiontkowski, MD**

**Faculty: Paul Tornetta, III, MD
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Disclosure: Faculty disclosure can be found starting on page 67 of the 2009 OTA Annual Meeting program.

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WHICH FRACTURE OUTCOMES MATTER IN FRACTURE CARE

I. The patient's perspective trumps the clinician's

- Don't forget clinical outcomes

II. Pain trumps function

III. Function varies by individual

- Major influences
 - age
 - medical co morbidity
 - education
 - employment demand
 - recreational interest

IV. The misunderstanding of the Worker's Compensation patient

V. Types of Functional Outcome Measures

- Capacity testing- gait analysis, self selected walking speed, timed stair climb, isokinetic testing
- Patient reported outcomes- HRQOL- SF-36, SIP, QWB, EuroQual 5D, MFA, SMFA, DASH, QuickDash

VI. Pain Assessment

- VAS, Qualifiers

VII. Which Outcomes Matter?

- Pain, function by validated self report questionnaires, functional testing and clinical outcomes

SF-36, SMFA, and EQ-5D: Do I Use All, None, or Some?

Emil H. Schemitsch, MD, FRCSC

Introduction

- The ultimate goal of health care is to maintain or improve the quality of life of individuals
- Including health related quality of life (HRQL) as an outcome measure in clinical research is important because:
 - It provides patient perspective on treatment efficacy
 - Clinical measures may correlate poorly with patient's feelings about a treatment
 - Radiographic and clinical outcome measures may not be able to distinguish between treatment groups, therefore an assessment of patient HRQL may be necessary
- Multiple validated and reliable generic HRQL measures are available including the SF-36, the SMFA, and the EQ-5D
- Generic HRQL surveys can be used across different age, disease, and treatment groups as they provide an overall assessment of HRQL
- They also allow comparisons across different populations and interventions
- The purpose of the presentation is to describe three commonly used generic HRQL questionnaires and to provide suggestions on how to determine which instrument(s) to use

Short Form-36 (SF-36)

- Most commonly used generic measure of HRQL
- Practical, reliable, and valid measure of physical and mental health
- Comprised of 36 questions to measure functional health and well-being from the patient's point of view
- Has two component summary measures: physical component score and mental component score
- Consists of eight domains: physical function, role physical, bodily pain, general health, vitality, social functioning, role emotional, and mental health
- Norm based scoring algorithms available
- Multiple modes of administration are available and it can be completed in five to ten minutes
- It is available in approximately 110 different languages
- Additional Information is available at www.qualitymetric.com

Short Musculoskeletal Functional Assessment (SMFA)

- Designed for use in community-based outcome studies and in the management of individual patients who have musculoskeletal disease
- Comprised of the dysfunction index, which has 34 items for the assessment of patient function, and the bother index, which has 12 items for the assessment of how much patients are bothered by functional problems
- Reliable and valid and has straight forward scoring with normative data available and is available in several languages (English, Spanish, German, Swedish)
- Additional information can be found at <http://www.med.umn.edu/ortho/research.html>

EuroQol-5 Dimensions (EQ-5D)

- Used in clinical trials, economic analyses, and population health surveys

- Includes five dimensions which are mobility, self care, usual activities, pain/discomfort, and anxiety/depression and three levels for each dimension: no problems, moderate problems, and severe problems
- Also includes a visual analogue scale of current health state (best imaginable health state = 100; worst imaginable health state = 0)
- Provides preference-weighted outcome measures that represent patients' preferences for a given health state relative to death (represented by 0) or perfect health (represented by 1)
- Results can be transformed into Quality Adjusted Life Years (QALY) which are used in cost-utility analyses
- Designed for self-completion by respondents and is ideally suited for use in postal surveys, in clinics and face-to-face interviews
- Takes only a few minutes to complete and is available in over 100 languages
- Additional information can be found at <http://www.euroqol.org/>

Questions to ask When Selecting a HRQL Instrument

- Are the domains covered relevant?
- In what population and setting was the instrument developed and tested, and are these similar to those situations in which it is planned to be used?
- Is the measure valid, reliable, responsive, and appropriate?
- What were the assumptions of the assessors when determining validity?
- Are there floor and ceiling effects? That is, does the measure fail to identify deterioration in patients who already have a poor quality of life or improvement in patients who already have a good quality of life?
- Will it measure differences between patients or over time and to what extent?
- How long does the questionnaire take to complete?
- Do patients find it easy to complete?

Other Considerations

- Selection of a HRQL instrument should be based on the intended purpose and how well the instrument satisfies that purpose
- Need to ensure that the HRQL instrument will address the research question(s) being asked
- If planning to compare results across multiple studies consider administering the SF-36 as it is frequently used
- If there is concern about the questionnaire not being sensitive enough to detect small differences between patient groups consider using the SMFA as its questions are specific to patients who have musculoskeletal disease
- If conducting an economic analysis consider using the EQ-5D as it produces utility scores and is commonly used in economic analyses
- When conducting international research consider using a questionnaire that that is available in multiple languages such as the SF-36 and the EQ-5D
- Important to take patient burden into consideration when deciding how many questionnaires to include especially if the patients are elderly, injured, or traumatized

Conclusions

- Selecting the appropriate generic HRQL measure(s) is an important decision
- Need to be well-informed before deciding which instrument to use
- Selection of an HRQL instrument should be based on the intended purpose and how well the instrument satisfies that purpose

Key References

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