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# Patient Reported Outcomes: Challenges for Rare Diseases

- PRO's would make excellent choice for devastating rare disorders
- Major problems exist in application
  - Few disease-specific instruments completed
  - Patient populations are small making preparing or qualifying PRO's difficult if not impossible
  - Methods and tools have limited precision and accuracy and so not effective in smaller studies
  - Other complex effects of chronic diseases



# Experiences in Mucopolysaccharidosis I

- Chronic lysosomal storage disorder
- No specific instruments originally available
- Ask MPS I patients how they are doing?
  - They always say they are doing fine
  - No matter what major problems are happening
  - Psychologic defence to deal with chronic disease



## QOL studies in Phase 3 and 1/2 Studies

- 45 patient RDBPC study with SF36, CHAQ/HAQ
  - Ages 6 -42 years old
  - Scores improved but **not statistically significant** and continued to improve over the next 3 yrs
  - Patients predicted who was on therapy 100% correctly due to benefit effect
- 10 Patient Phase 1/2
  - Scored SF36 at end for both beginning and end
  - Strongly positive increase integrating before and after
  - Precision/accuracy improved with integration



# Key problems for rare diseases

- Developing compliant instruments is difficult due variable and limited patients
- Without multiple treatment studies, gauging utility and value is difficult
- Response Shift is common in chronic diseases and worsens precision/accuracy
- How can we utilize PRO's in rare diseases in a scientifically sound manner?