### Health-Related Quality of Life

November 14, 2011: 9-10:30am

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 UCLA Department of Medicine: Division of General Internal Medicine and Health Services Research
 UCLA School of Public Health: Department of Health Services

- RAND, Santa Monica

## Health-Related Quality of Life is ...

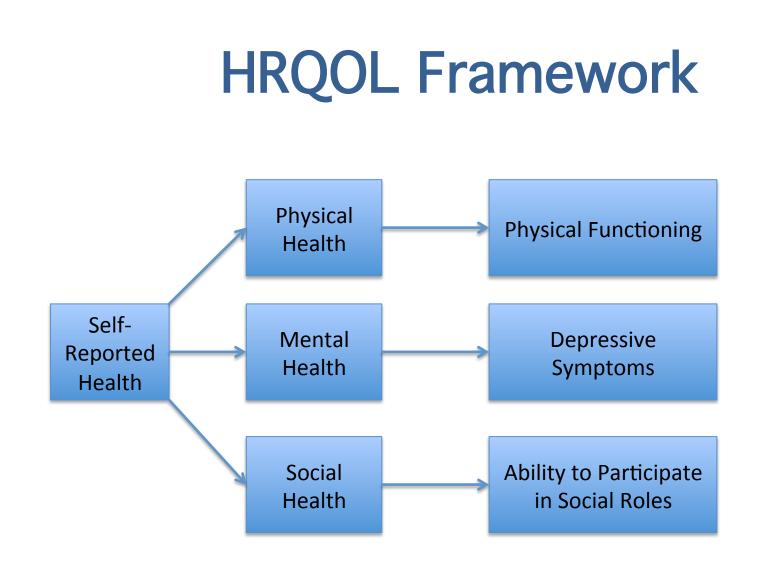
## What you can <u>do</u>.

• Functioning

Self-care Role Social

### How you feel about your life.

- <u>Well-being</u>
   Emotional well-being
   Pain
  - Energy



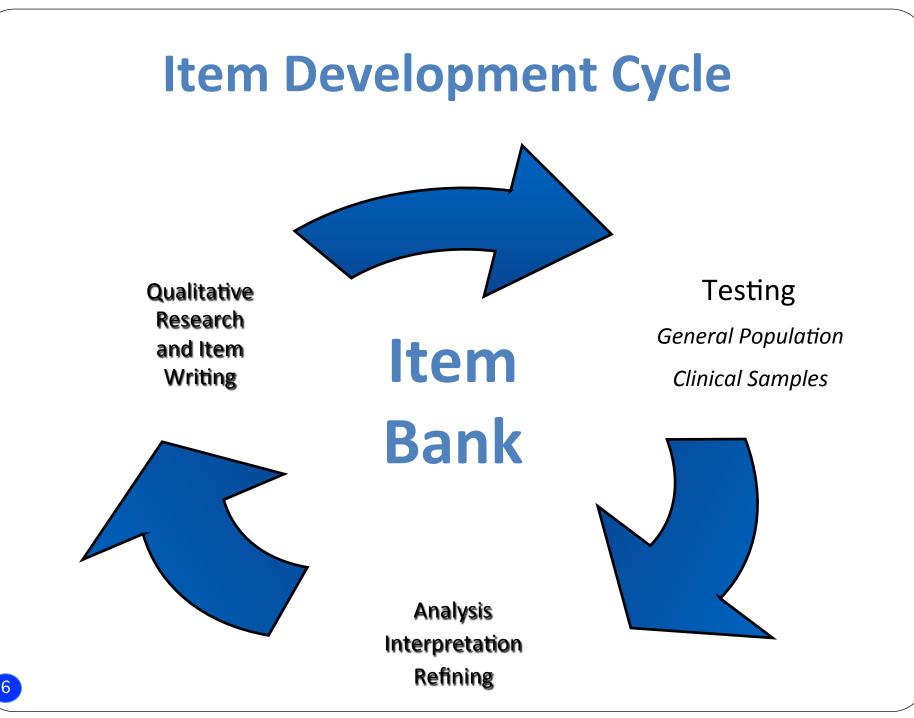
## SF-36®

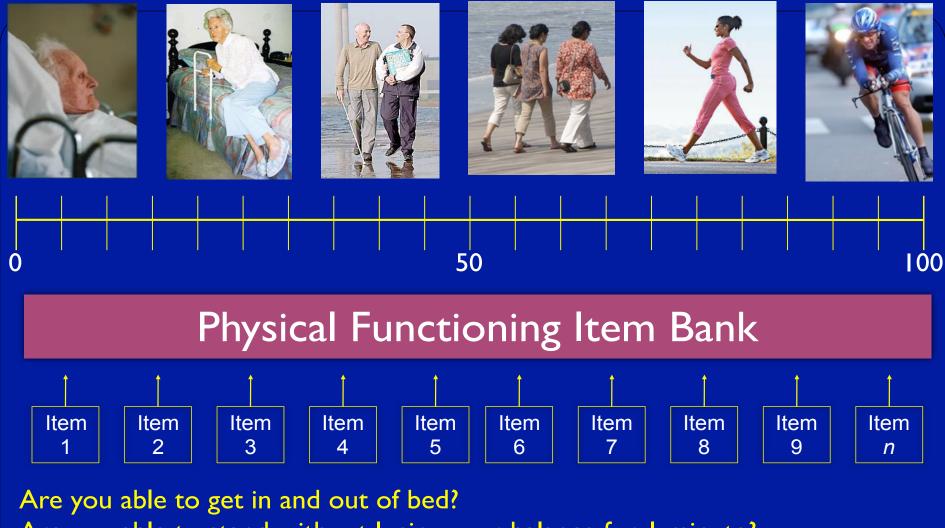
### • Functioning

- Physical functioning (10 items)
- Role limitations/physical (4 items)
- Role limitations/emotional (3 items)
- Social functioning (2 items)
- Well-Being
  - Emotional well-being (5 items)
  - Energy/fatigue (4 items)
  - Pain (2 items)
  - General health perceptions (5 items)

# An *item bank* is a large collection of items measuring a single domain.

Any and all items can be used to provide a score for that domain.

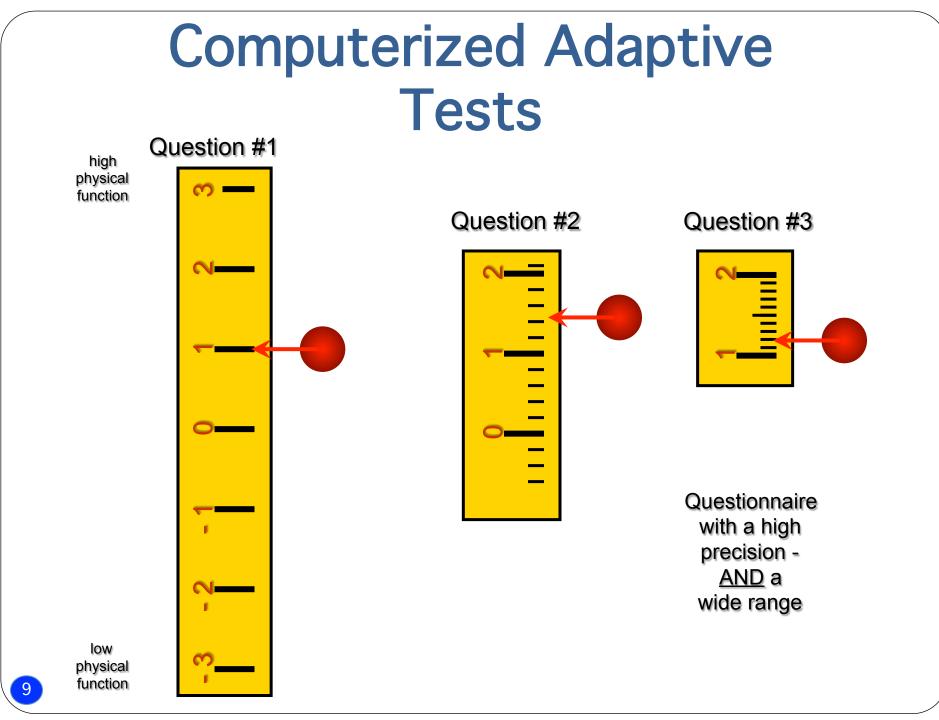




Are you able to stand without losing your balance for 1 minute? Are you able to walk from one room to another? Are you able to walk a block on flat ground? Are you able to run or jog for two miles? Are you able to run five miles?

## Computerized Adaptive Testing (CAT)

- Select questions based on responses to previously administered questions.
  - Pick most "informative" items
- Iteratively estimate "location" on the domain (e.g., anger)
- Stop administering items when desired level of precision is reached.



# Reliability and SEM

- z-score (mean = 0 and SD = 1)
  - Reliability = 1 SEM<sup>2</sup> (for z-scores)
     = 0.91 (when SEM = 0.30)
     = 0.90 (when SEM = 0.32)
- With 0.90 reliability
  - 95% Confidence Interval for score at mean
    - z-score: -0.62 → 0.62
- T-score = (z-score \* 10) + 50
  - T-score: 44  $\rightarrow$  56

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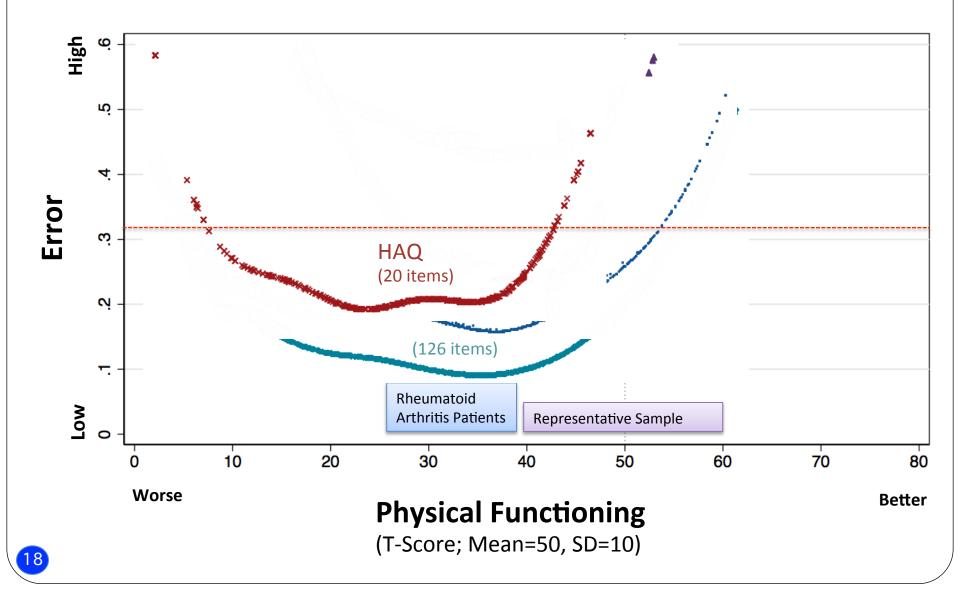
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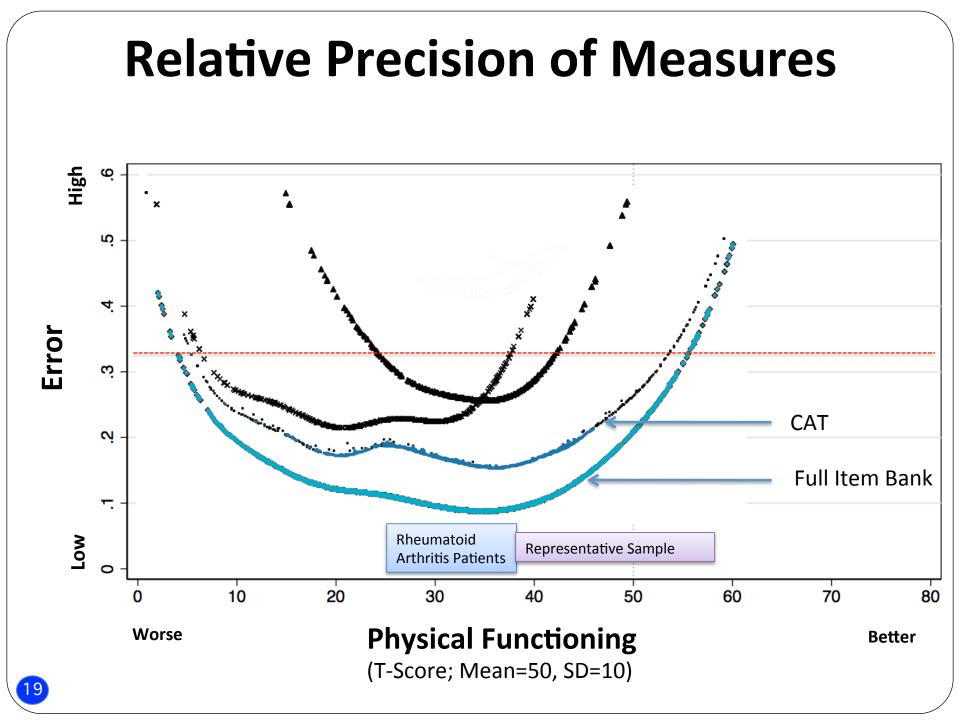
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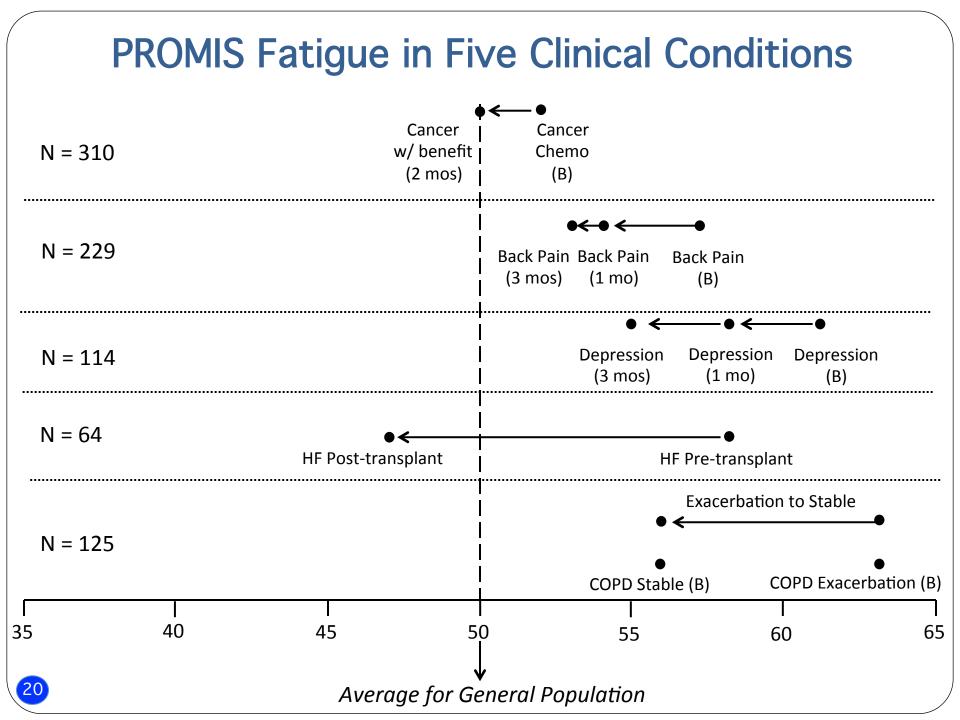
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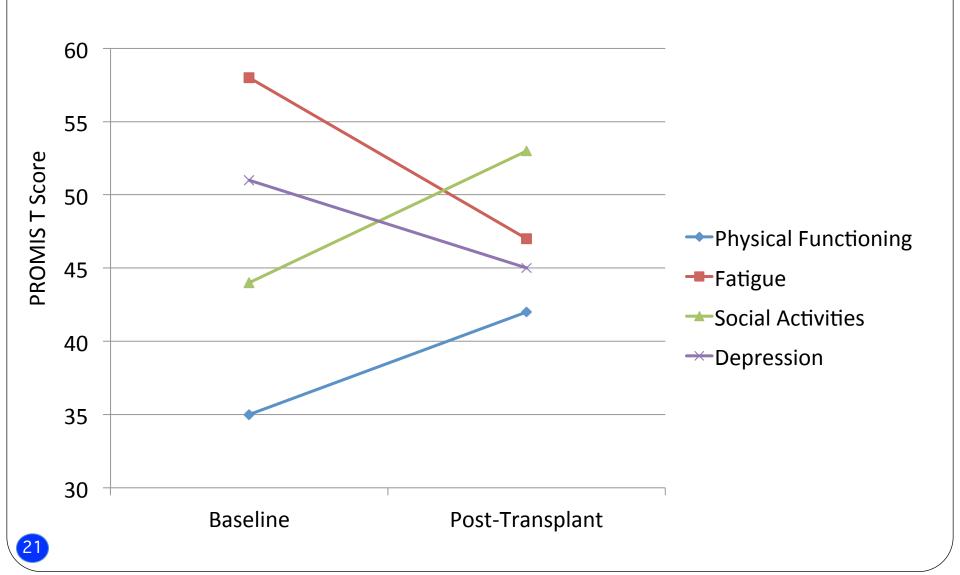
## **Relative Precision of Measures**







### Multi-Domain Results from Heart Transplant Trial



# Assessment Center www.nihpromis.org

- PROMIS surveys
- CAT software
- Study-specific URL
- Non-PROMIS items
- eConsent
- NIH inclusion enrollment report



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If this is your first visit to our site, please dick on the Register New User link below.

Once you have completed your registration, you will be able to download PDFs of all the PROMIS instruments so that they may be administered via paper & penol. You will also be able to immediately log into Assessment Center<sup>SM</sup> to begin work. An email will be sent to you with your username and password for your records.

If you have already registered and would like to work in Assessment Center<sup>SM</sup>, please dick on the Login link below.

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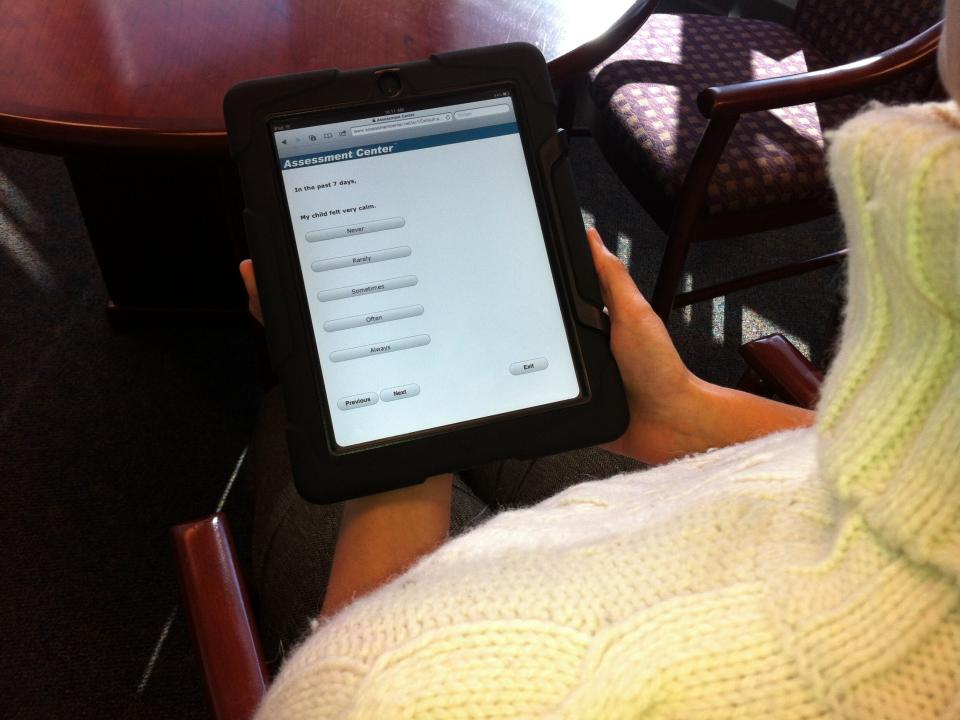








# Assessment Center supports different modes of administration



Your scores for the CATs you completed are shown below.

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64

62

34

43

56

38

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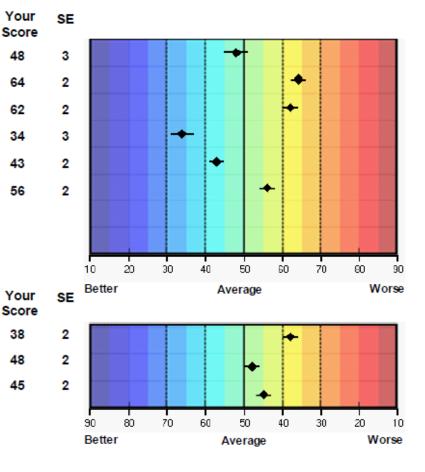
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The diamond • is placed where we think your score lies. This diamond is placed on your T-Score, which is a standardized score that is based on an average score of 50, based on responses to the same questions in the United States general population. The T-score also has a standard deviation of 10 points, so a score of 40 or 60 represents a score that is one standard deviation away from the average score of the general US population.

The Standard Error (SE) is a statistical measure of variance and represents the possible range of your score. The lines on either side of the diamond in your profile report show the possible range of your actual score around this estimated score. It is very likely that your score is in the range of these lines.

CAT Graph

	\$
Anger	
Anxiety	
Depression	
Fatigue	
Pain Behavior	
Pain Impact	



Physical Function Social Activity Social Role

# Significant Improvement in all but 1 of SF-36 Scales (Change is in T-score metric)

	Change	t-test	prob.
PF-10	1.7	2.38	.0208
RP-4	4.1	3.81	.0004
BP-2	3.6	2.59	.0125
GH-5	2.4	2.86	.0061
EN-4	5.1	4.33	.0001
SF-2	4.7	3.51	.0009
RE-3	1.5	0.96	.3400 ←
EWB-5	4.3	3.20	.0023
PCS	2.8	3.23	.0021
MCS	3.9	2.82	.0067

## Defining a Responder: Reliable Change Index (RCI)

 $X_{2} - X_{1}$  $(\sqrt{2})$  (SEM)

 $SEM = SD_{hl} \times \sqrt{1 - r_{xx}}$ 

*Note:*  $SD_{bl}$  = standard deviation at baseline  $r_{xx}$  = reliability

### Amount of Change in Observed Score Needed for Significant Individual Change

Scale	Change	Effect size	Reliability
PF-10	8	0.7	0.94
RP-4	8	0.7	0.93
BP-2	10	1.0	0.87
GH-5	13	1.1	0.83
EN-4	13	1.3	0.77
SF-2	14	1.1	0.85
RE-3	10	0.7	0.94
EWB-5	13	1.3	0.79
PCS	7	0.6	0.94
MCS	10	0.7	0.93

# 7-31% of People in Sample Improve Significantly

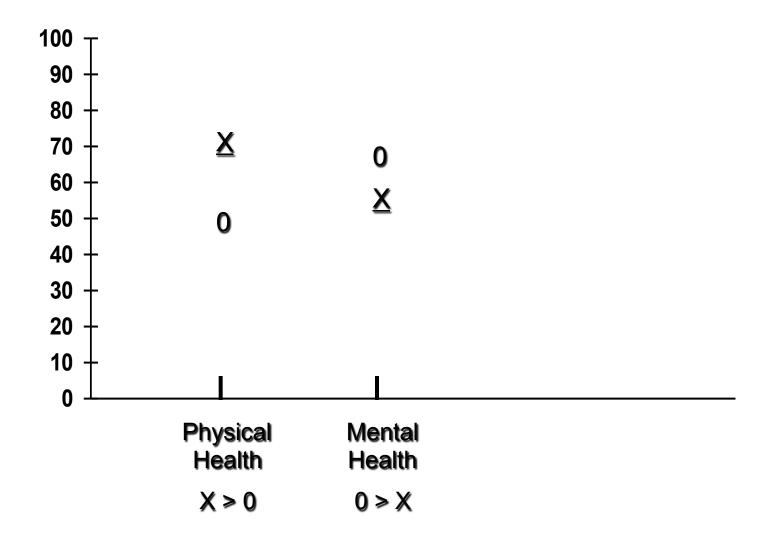
	% Improving	% Declining	Difference
PF-10	13%	2%	+ 11%
RP-4	<u>31%</u>	2%	+ 29%
BP-2	22%	7%	+ 15%
GH-5	<u>7%</u>	0%	+ 7%
EN-4	9%	2%	+ 7%
SF-2	17%	4%	+ 13%
RE-3	15%	15%	0%
EWB-5	19%	4%	+ 15%
PCS	24%	7%	+ 17%
MCS	22%	11%	+ 11%

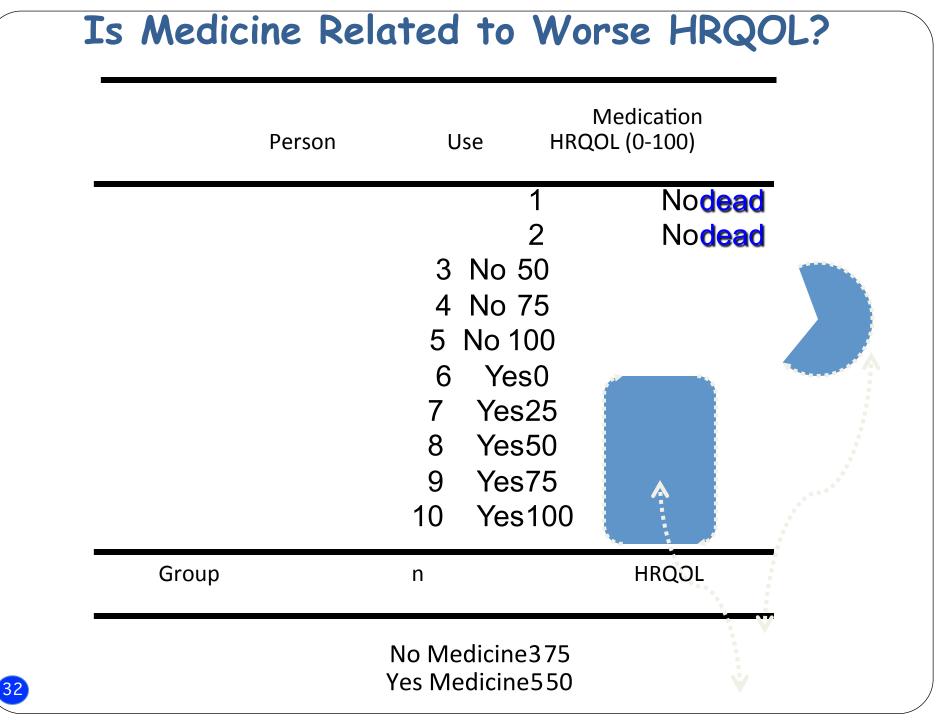
## Ultimate Use of HRQOL Measures--Helping to Ensure Access to Cost-Effective Care

Cost  $\downarrow$ 

Effectiveness  $\uparrow$ 

### Is New Treatment (X) Better Than Standard Care (O)?

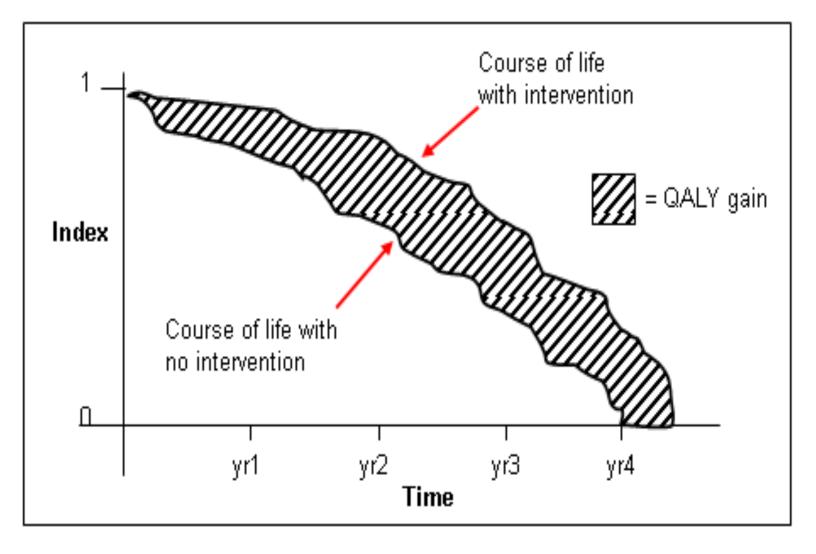




## **Indirect Preference Measures**

- Attributes know and used to estimate societal preferences
  - >Quality of Well-Being (QWB) Scale
  - ≻EQ-5D
  - ► HUI2 and HUI3
  - ≻SF-6D

### QALY with and without Intervention

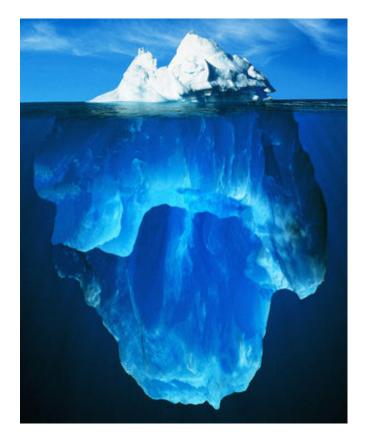


## **Use of PROMIS**

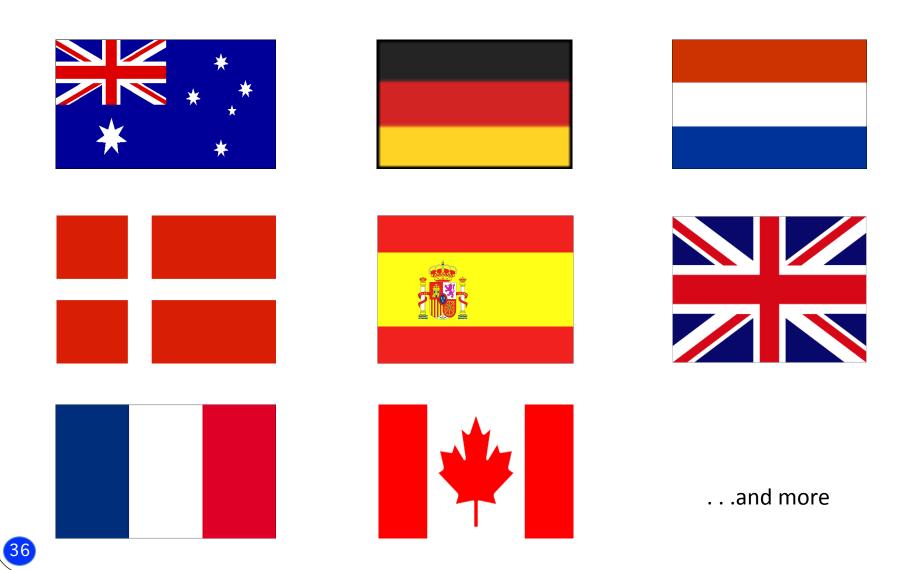
#### • 44 NIH grants

- R01; R21; P01; P60; U01; K; SBIR
- 111 studies <u>collecting data</u> on AC
- 20 NIH-sponsored clinical trials
   ECOG; GOG; RTOG; SWOG; NCCTG; COG
- 8 Industry-sponsored clinical trials
- 12 Foundation-sponsored registries

   Surgery; cardiology; oncology; nephrology; pediatrics



### **PROMIS International Users' Group**

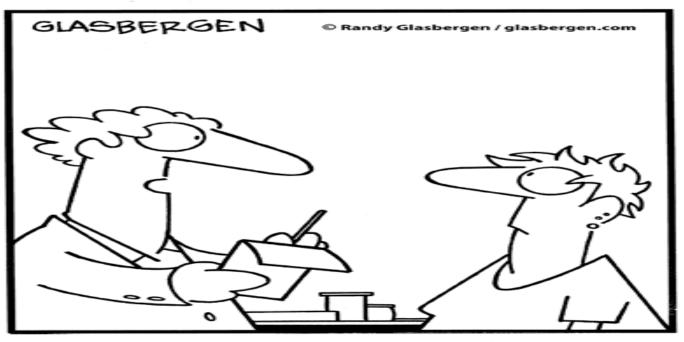


## **Questions**?

<u>http://gim.med.ucla.edu/FacultyPages/Hays/</u>

http://twitter.com/RonDHays

www.nihpromis.org



"I'm prescribing a diet patch to repair the leak in your willpower."