

## Patient Reported Outcomes in Clinical Practice

Ian F Tannock MD, PhD  
Princess Margaret Hospital and  
University of Toronto

8/15/2007

ISOQOL Budapest 2007

## Important Questions about Patient Reported Outcomes (from Dr Lohr)

"At the heart of the debate lie three issues:

1. Will clinicians come to accept PRO measures?
2. Will they use them in daily practice in ambulatory or hospital settings?
3. Will such measures demonstrably enhance the very outcomes they are supposed to assess?"

8/15/2007

ISOQOL Budapest 2007

## Evaluation of PROs in Clinical Practice

8/15/2007

ISOQOL Budapest 2007

## Levels of Scientific Evidence Relevant to any intervention

1. Large randomized controlled trials (RCTs) or meta-analyses
2. Small RCTs
3. Contemporary (but not randomized) controls
4. Historical controls
5. Case series

8/15/2007

ISOQOL Budapest 2007

### Health-Related Quality-of-Life Assessments and Patient-Physician Communication A Randomized Controlled Trial

JAMA. 2002;288:3027-3034

**Background:** There has been increasing interest in the use of health-related quality-of-life (HRQL) assessments in daily clinical practice, yet few empirical studies have been conducted to evaluate the utilization of such assessments.  
**Objective:** To evaluate the efficacy of standardized HRQL assessments in facilitating patient-physician communication about and increasing physician awareness of their patients' HRQL-related problems.

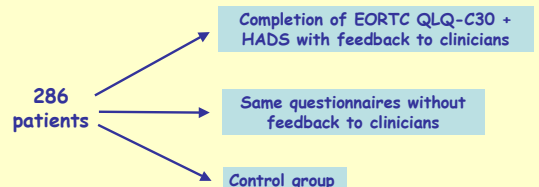
- 214 pts undergoing palliative chemotherapy completed EORTC-QLQ-C30 on 3 occasions
- 10 physicians randomized to intervention or control groups with crossover
- Summary of QL data given prior to consultation in intervention group
- Audiotapes of consultation analyzed for content
- QL issues discussed more frequently in intervention group - improved communication
- Only modest effect on patient management

8/15/2007

ISOQOL Budapest 2007

### Measuring Quality of Life in Routine Oncology Practice Improves Communication and Patient Well-Being: A Randomized Controlled Trial

Galina Velikova, Laura Booth, Adam B. Smith, Paul M. Brown, Pamela Lynch, Julia M. Brown, and Peter J. Selby  
J Clin Oncol 22:714-724 © 2004



Main endpoints: HRQL by FACT-G, communication & clinical management

8/15/2007

ISOQOL Budapest 2007

## Results of study

(Velikova et al, JCO 2004:22:714-24)

- Better HRQL in pts who had completed questionnaires - but no significant difference in overall scores with or without feedback to doctors
- Higher prop<sup>n</sup> of pts had meaningful improvement in HRQL where feedback was given to clinicians
- More discussion of chronic symptoms with feedback to clinicians - better communication
- Positive effect on emotional well-being
- **No detectable effect on patient management**

8/15/2007

ISOQOL Budapest 2007

In general, the formal collection and presentation of PROs to clinicians has shown .....

... improvements in awareness and communication, but

... minimal effects on broad health issues such as **Quality of Life, patient management, or overall satisfaction with the care received**

Although note the poster by Gutteling et al (Rotterdam):

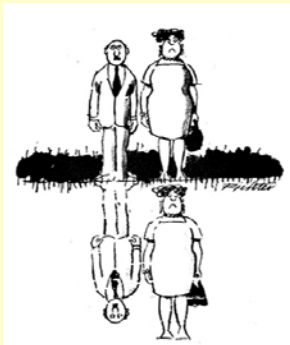
A cluster RCT which shows significant increase in alteration of treatment policy for patients with chronic liver disease in an RCT following feedback of computerized HRQL

8/15/2007

ISOQOL Budapest 2007

A pause for reflection...

Why has routine use of PRO's not had a greater impact on patient management and well-being?



8/15/2007

ISOQOL Budapest 2007

Three potential reasons for limited benefits from routine use of PROs

- Use of PROs is but one intervention in the management of patients with advanced disease -
- but other factors (treatment, progression of disease) are likely to dominate health outcomes
- 2. We look for average changes between groups (e.g. with and without reporting of PROs to clinicians) -
- but most interventions (e.g. application of treatment) will benefit only a subset of patients
- Studies of the use of PROs have emphasized outcomes that are complex such as HRQL -
- but easier to modify individual components such as pain or constipation

8/15/2007

ISOQOL Budapest 2007

It is perhaps naïve to expect that feedback to a doctor from a questionnaire will influence a complex construct such as HRQL in a patient with a disease such as cancer

The patient's HRQL is likely to be dominated by their prognosis, response to treatment, overt symptoms of disease, effects of treatment etc...

8/15/2007

ISOQOL Budapest 2007

Use of PROs is but one intervention in the management of patients with advanced disease -

- A patient who has a new symptom due to progression of disease... ..is likely to discuss this with their doctor
- A patient with relief of a symptom due to effective treatment... .. is likely to discuss this with their doctor
- The formal use of PROs is likely to add to the consultation for more chronic symptoms and subtle changes in them

8/15/2007

ISOQOL Budapest 2007

## Trials to evaluate PROs in clinical practice

Comparing means for intervention and control groups

versus

Comparing proportion of individuals who benefit

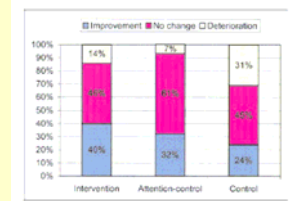
8/15/2007

ISOQOL Budapest 2007

We look for average changes between groups but most interventions will benefit only a subset of patients

In the Velikova study, there was no significant difference in mean overall HRQL between groups

but a higher proportion of pts had improved HRQL if feedback was given



In general we should be asking about the proportion of patients who have benefit ("respond to the intervention") rather than mean or median changes across groups

8/15/2007

ISOQOL Budapest 2007

## Assessment of PROs in a trial to evaluate their use

### Method one:

- Measure the mean QL or symptom score of each randomized group at baseline
- Measure the mean QL or symptom score following the intervention (A) and in controls (B)

### Compare:

1. Each arm with its baseline.
2. Arm A with Arm B

8/15/2007

ISOQOL Budapest 2007

## But...

A patient reported outcome (e.g. a symptom score) will change at different rates and in different directions in different patients.

It is hard for me to assign a meaning to a mean value for a PRO

8/15/2007

ISOQOL Budapest 2007

## Assessment of the impact of an intervention (use of PROs) by a Clinical Trial

### Preferred Method:

- Measure the PRO (e.g. symptom score) in each patient at baseline.
- Specify an improvement in the outcome measure, and its duration, for a patient to have a response.
- Determine the proportion of patients with and without the PRO feedback who satisfy criteria of response.

8/15/2007

ISOQOL Budapest 2007

## The measurement problem

- We learnt from Dr Donaldson that we cannot measure PROs for an individual accurately
- Thus a PRO response will be subject to uncertainty
  - But so are other response parameters in medicine such as change in tumour size or blood pressure
- But we can overcome this by using an adequate sample in trials to evaluate their use

8/15/2007

ISOQOL Budapest 2007

Application of PROs to the individual patient  
(The N of 1 trial)

8/15/2007

ISOQOL Budapest 2007

Studies of the use of PROs in clinical practice have emphasized outcomes that are complex such as HRQL

A principle:

Don't do a diagnostic test -

- unless there is an intervention that will depend on its result

8/15/2007

ISOQOL Budapest 2007

Similarly, documenting a health problem is most useful when there is a treatment that can improve it

PROs for which there are effective treatments

- Pain
- Nausea/vomiting
- Constipation/diarrhea

PROs for which there are few effective treatments

- Fatigue
- Emotional problems
- HRQL

Knowledge of symptoms with minimal effective treatments can assist with support and compliance, but is unlikely to lead to major changes in management

I suggest that we design RCTs to evaluate use of PROs in clinical practice that emphasize treatable symptoms rather than HRQL

8/15/2007

ISOQOL Budapest 2007

Perhaps our model for a PRO should not be a multi-functional Swiss Army Knife, but a ...



8/15/2007

ISOQOL Budapest 2007

Two ways in which recording of PROs might influence routine clinical practice

- Increasing awareness of a correctable clinical problem in a consultation with physician or nurse

and/or

- Raising awareness of a particular problem (e.g. pain) among patients in a community (hospital ward, ambulatory clinic) who are asked to report PROs routinely

8/15/2007

ISOQOL Budapest 2007

## Education about pain can improve pain control in a community

- A key component is frequent and routine self-assessment of pain by patients
- Formal education of cancer patients suffering from chronic pain can also improve management

8/15/2007

ISOQOL Budapest 2007

## The Zero Acceptance of Pain (ZAP) project

(Fortner et al, J Pain Symptom Manag 2003;25:334-43)

ZAP = Comprehensive project to educate oncology staff at Univ of Memphis (2-day preceptorships)

Experienced oncology nurse appointed as ZAP Coordinator in each clinic

Components included pocket pain management card, patient self-report forms, patient pain journals

Patients completed pain self-reports at each visit while waiting to be seen

8/15/2007

ISOQOL Budapest 2007

## The ZAP project

	Pre-ZAP (N= 80)	Post-ZAP (N = 91)	P-value
Severity rating for worst pain in last 24h (range 0-10)	4.08	3.26	<0.05
Overall pain severity rating (range 0-10)	2.64	2.17	0.11
Pain interference rating (range 0-10)	3.73	2.88	<0.05

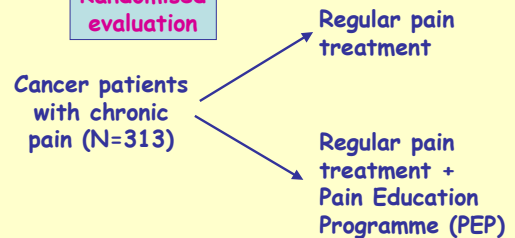
8/15/2007

ISOQOL Budapest 2007

## Education of patients

(de Wit et al, Europ J Pain 2001;5:241-56)

Randomised evaluation



8/15/2007

ISOQOL Budapest 2007

## The pain education program led to improved pain control

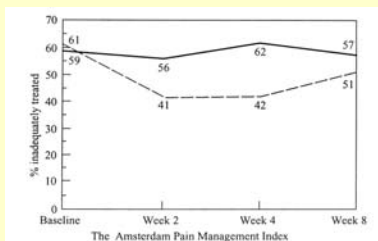


FIG. 1. Effect of the pain education programme on the Amsterdam Pain Management Index. — Control groups; --- Intervention groups.

8/15/2007

ISOQOL Budapest 2007

## Initial enthusiasm versus sustained benefit?

- There is evidence that a program where pain is routinely documented by patients can lead to overall improvement in pain control
  - in the short term!
- I am unable to find publications that document long-term benefit from introduction of such a program

8/15/2007

ISOQOL Budapest 2007

## Would a similar approach lead to improvement in **Fatigue**?

"Cancer-related fatigue: inevitable, unimportant and untreatable. Results of a multi-centre patient forum." *Ann Oncol* 2000;11:971-5

A survey of 1307 patients, with 576 responding.

Incidence of

Fatigue:	58%
Pain:	22%
Nausea/vomiting:	18%

**And for most, the doctor never even asked!**

8/15/2007

ISOQOL Budapest 2007

A PRO could certainly remind a doctor to ask about fatigue...  
**...but the problem is that there are few effective interventions**

- There is level 1 evidence only to support use of exercise to improve fatigue...

... and it is very hard for many patients with chronic disease to use this strategy

8/15/2007

ISOQOL Budapest 2007

## Conclusions

- It has been difficult to demonstrate an effect of PROs to change the management of individual patients
- Use of PROs is more likely to change practice when restricted to treatable outcomes
- Clinical trials to evaluate use of PROs in routine practice should look for changes in the proportion of patients who benefit rather than changes in group mean scores
- When we apply PROs to chronic diseases we should evaluate their ability to provide sustained improvements in outcome

8/15/2007

ISOQOL Budapest 2007

## The End

8/15/2007

ISOQOL Budapest 2007