

A Multi Criteria Decision Analytic (MCDA) approach to combining evidence and patient preferences for cancer prevention and treatment:

an application to prostate cancer screening

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# Patients and Patience

“Efficient health care requires informed doctors *and* patients. The health care system inherited from the 20<sup>th</sup> century falls short on both counts”

"(We have an)... inefficient system that wastes taxpayer's money on unnecessary or even potentially harmful tests and treatments as well as on medical research that is of limited relevance to the patient"

Raise taxes? Ration resources?

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"The 21<sup>st</sup> century should become the century of the patient. ...Promote health literacy and better care is possible for less money"

" (What's needed).... is honest and transparent information to enable better doctors, better patients and ultimately better health care"

- › Chapter from "Better Doctors, Better Patients, Better Decisions: Envisioning Health Care 2020" edited by Gerd Gigerenzer and J.A. Muijt Gray. MA. MIT Press (due out February 2011)
-

# Take for example, PSA screening for prostate cancer

## *THE BENEFIT*

- ERSPC study found that the risk of dying from prostate cancer from 3.65 deaths per 1000 men over 9 years to 2.94 deaths per 1000 men over 9 years.

## • *POTENTIAL HARMS*

- Control group – 48/1000 men affected by prostate cancer diagnosis and treatment
- Screened group – 82/100 men

# Take for example, PSA screening for prostate cancer

## *SNAPSHOT BENEFIT TO HARM RATIO*

- 34 additional men diagnosed with prostate cancer and treated for LESS than one death per 1000 men
  - 1410 men would need to be screened and 48 additional cases of prostate cancer would need to be treated to prevent a single death from prostate cancer.
-

# Take for example, PSA screening for prostate cancer

## *The elephant in the room*

- Put those 48 men in one room.
- "Each would be convinced that the detection and treatment of their prostate cancer had saved their life. And 47 of the 48 would be wrong"

*Chapman S, Barratt A and Stockler M. Let Sleeping Dogs Lie. What men should know before getting tested for prostate cancer. Sydney University Press. 2010.*

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# What is the possible response to this?

- Information support
    - Yes, but written information is often presented in a bias way
    - (*insert ref to review*)
  - Decision support
    - For patients, for doctors, - to achieve informed consent
    - Growing recognition for more formal decision support
-

# Affordable Health Care for America Act

## **SEC. 1236. DEMONSTRATION PROGRAM ON USE OF PATIENT DECISIONS AIDS.**

(a) IN GENERAL.—The Secretary of Health and Human Services , acting through the Center for Medicare and Medicaid Innovation established under section 1115A of the Social Security Act (as added by section 1907) and consistent with the applicable provisions of such section, shall establish a shared decision making demonstration program (in this subsection referred to as the “program”)

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# Affordable Health Care for America Act

(2) PATIENT DECISION AID.—The term “patient decision aid” means an educational tool (such as the Internet, a video, or a pamphlet) that helps patients (or, if appropriate, the family caregiver of the patient) understand and communicate their beliefs and preferences related to their treatment options, and to decide with their health care provider what treatments are best for them based on their treatment options, scientific evidence, circumstances, beliefs, and preferences.

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# Affordable Health Care for America Act

(3) SHARED DECISION MAKING.—The term “shared decision making” means a collaborative process between patient and clinician that engages the patient in decision making, provides patients with information about trade-offs among treatment options, and facilitates the incorporation of patient preferences and values into the medical plan.

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# Key requirements in this legislation

- › It's for 'patients' ....and clinicians
  - › Options
  - › Scientific evidence
  - › Beliefs, preferences and values
  - › Trade-offs
  - › Educational tool
-

# My talk today

- › How to implement decision support using Multi Criteria Decision Analysis (MCDA) via an interactive aid - Annalisa



Dr Michelle Cunich  
A/Prof Kirsten Howard

Prof Jack Dowie



LONDON SCHOOL OF HYGIENE & TROPICAL MEDICINE  
UNIVERSITY OF LONDON



# Declarations

- › Jack Dowie, London School of Hygiene and Tropical Medicine, is a part owner of the IP of Annalisa ©
- › MyDecisionSuite and MyDecisionQuality are © 2011 Mette Kjer Kaltoft and Jack Dowie
- › The Prostate Cancer Screening Annalisa was designed by
- › Glenn Salkeld and Michelle Cunich, University of Sydney
- › and Jack Dowie.
- › The School of Public Health, University of Sydney has no precuniary interest in the software or licensing but does have a strong interest in research collaboration and open access to interactive decision support aids that have been evaluated. **AND.....**



I'm a BIG fan of BC!



# What is MCDA?

Multi criteria methods to designed to help people make better choices when faced with complex decisions

Facilitates combination of 'evidence' and 'subjective preferences'

- Decompose the decision problem
- Describe the attributes or characteristics of option  
(or the criteria used to determine whether a decision goal is met)

Value-based methods use quantitative approaches to determine how well the options fulfill the criteria and decision priorities of the criteria in achieving the goal of the decision





My Decision Suite

## My Prostate Cancer Screening Aid : a Survey



**"I feel fine but I'm hearing suggestions that men of my age should have a test to see whether they might have prostate cancer"**

**Professor Glenn Salkeld: It all depends... why don't you use this new interactive decision aid to see whether having this test would be the best thing for you?**



Please click [HERE](#) to listen to a brief message from Professor Salkeld

When you click 'Next' you will be asked to consent to participate in this survey and after that the interactive decision aid will appear on your screen

Back

Next



## My Decision Suite

# My Prostate Cancer Screening Aid

We invite you to consult our new online interactive aid for men making a decision about whether to be screened for Prostate Cancer  
*You may wish to consult your doctor before making a final decision. Only a doctor can order a PSA test*

This survey consists of six sections. Each section is represented by the colour coded boxes below.

It may take you as little as 15 minutes to complete all of the sections.  
But allow half an hour if you want explore the aid a bit more and extract the full benefit from our interactive decision aid.  
Click the 'Next' button in the bottom LEFT hand corner to move onto the next section.

### My Decision Navigator

### My Decision Preparation

### My Decision Aid

### My Decision

### My Decision Quality

### My Decision Follow-up



# Preparing for the decision

## My Decision Navigator

Being screened for possible Prostate Cancer is a serious decision which is ultimately up to you to make.  
Your response to the following questions will take you to the parts of the interactive decision aid and survey that are relevant to your needs.

## My Decision Preparation

If you are seeking to make a high quality decision it is useful to have a clear idea of what you see as the ingredients of a good decision before you start.

In this section we do three things:

Provide information about your prostate, prostate cancer and PSA testing at a level of detail selected by you - with links to more information as required

Remind you of what is required for you to give your *informed consent* to any future decision that you may take in relation to screening and treatment

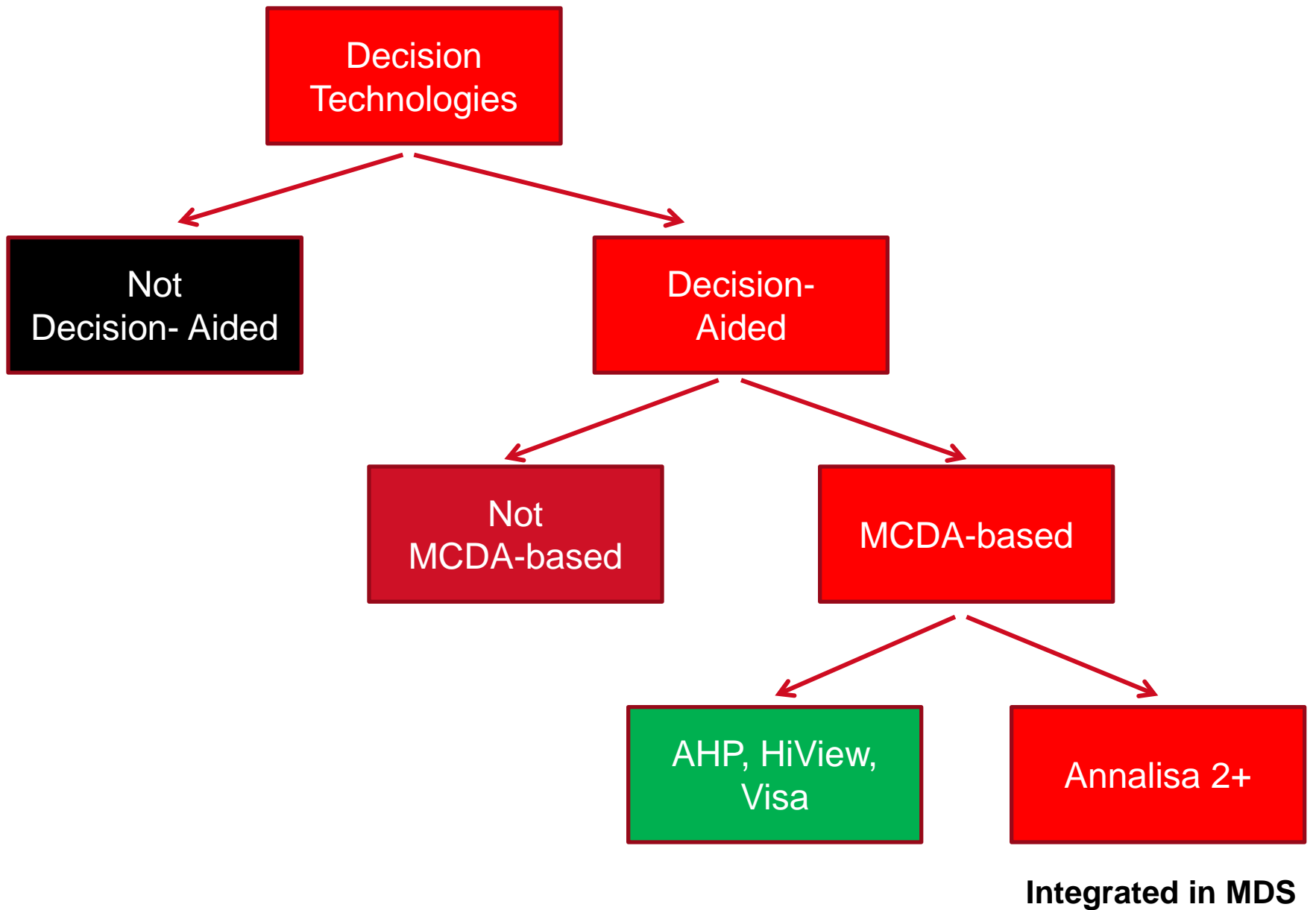
Present a list of things that are commonly regarded as criteria for a high quality decision.

Because different people weight these criteria differently, we also ask you to indicate how important each criterion is to YOU.

## What is important for you in making a decision?

Please indicate how important each criterion is to YOU by checking the appropriate button.

|  | None                  | Some                  | Moderate              | High                  | Very high             |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| <b>OPTIONS</b><br>Importance of being clear about the possible <b>OPTIONS</b> for me and what they involve   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <b>EFFECTS</b><br>Importance of being clear about the possible <b>EFFECTS</b> and outcomes of each of the options for me   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <b>IMPORTANCE</b><br>Importance of being clear about the relative <b>IMPORTANCE</b> of the different effects and outcomes for me   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <b>CHANCES</b><br>Importance of being clear about the <b>CHANCES</b> of the different effects and outcomes happening to me, including the uncertainties surrounding the best estimates       | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <b>TRUST</b><br>Importance of being able to <b>TRUST</b> the information I am given is the best possible   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <b>SUPPORT</b><br>Importance of feeling I received the level of <b>SUPPORT</b> and consideration I wanted throughout the decision process, especially in regard to communicating at my level | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <b>CONTROL</b><br>Importance of feeling in <b>CONTROL</b> of the decision to the extent I wished   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <b>COMMITMENT</b><br>Importance of feeling <b>COMMITTED</b> to acting on the decision taken  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |



# Annalisa for PSA Testing ..



## Scores



Options

Option Scores

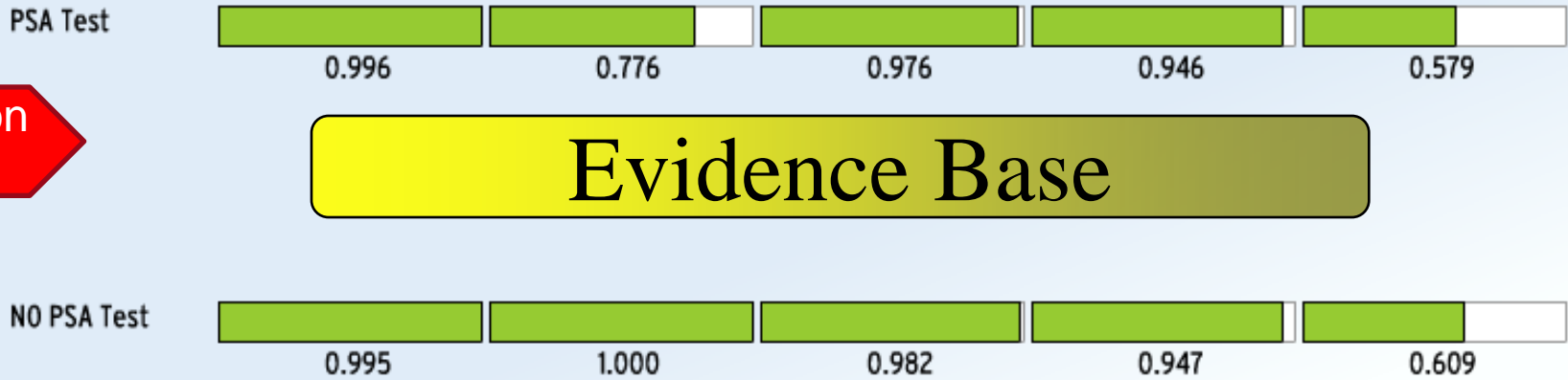
## Weightings



Attributes

Preference Base

## Ratings



Options

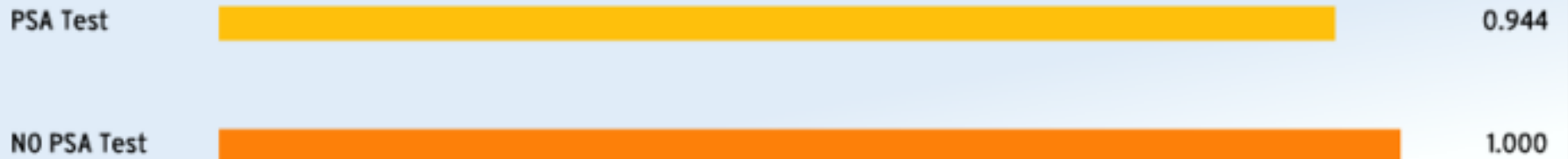
Evidence Base

# Annalisa for PSA Testing ..

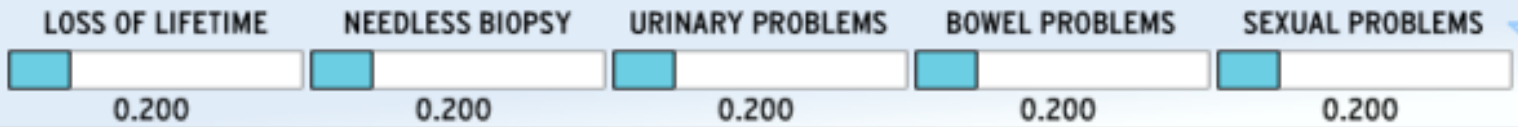


Change Annalisa Settings

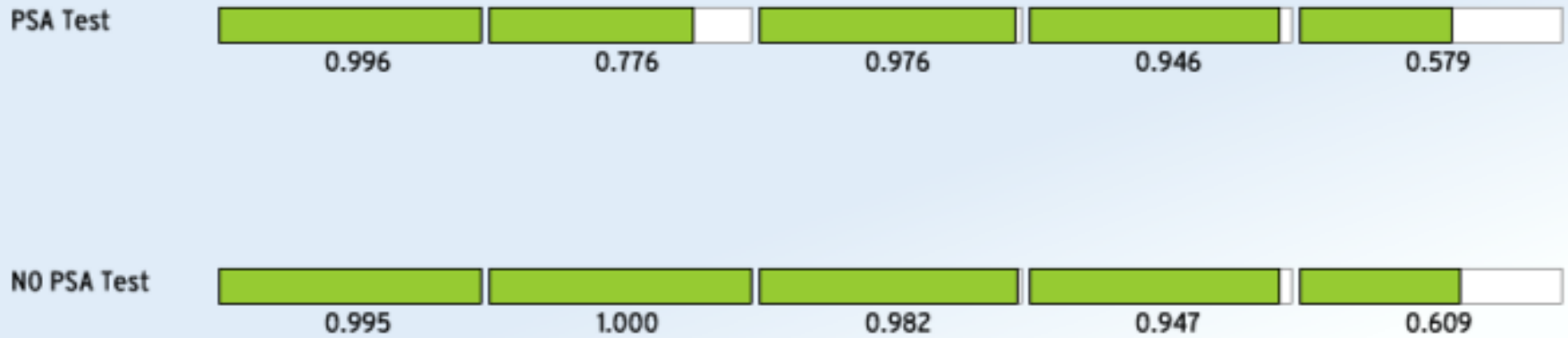
## Scores



## Values



## Evidence



# My Decision Aid

- › PSA Annalisa – Demonstration Video
- › <http://www.screencast.com/t/MINAbfcl>
- › [Camtasia Studio\PSA Test SHort Demo V3\PSA Test SHort Demo V3.avi](#)



# Low Numeracy

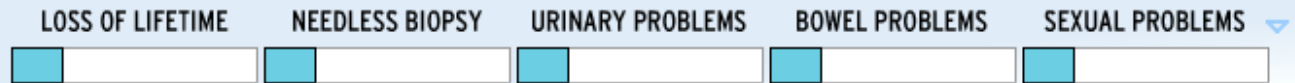
## Annalisa for PSA Testing ..



### Scores



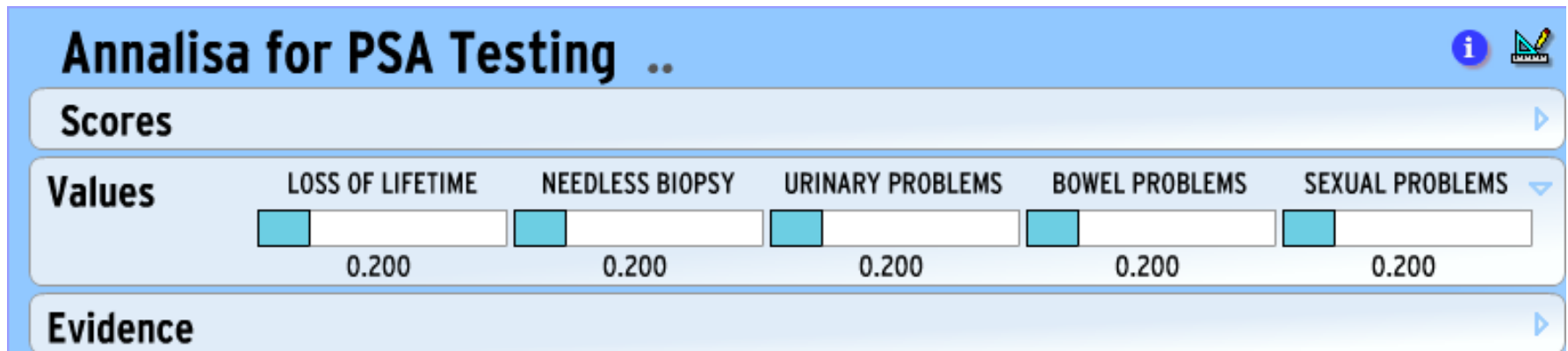
### Values



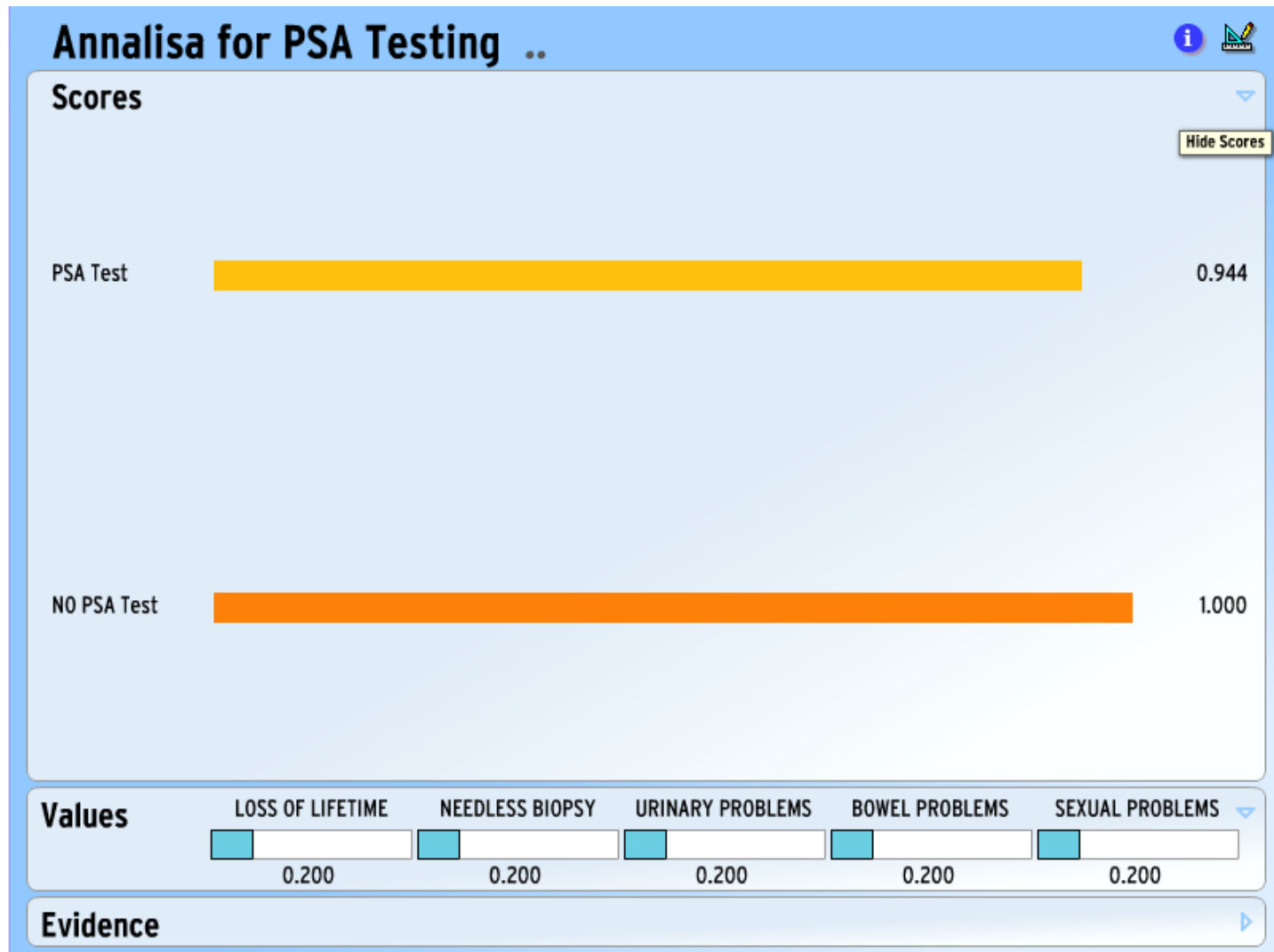
### Evidence



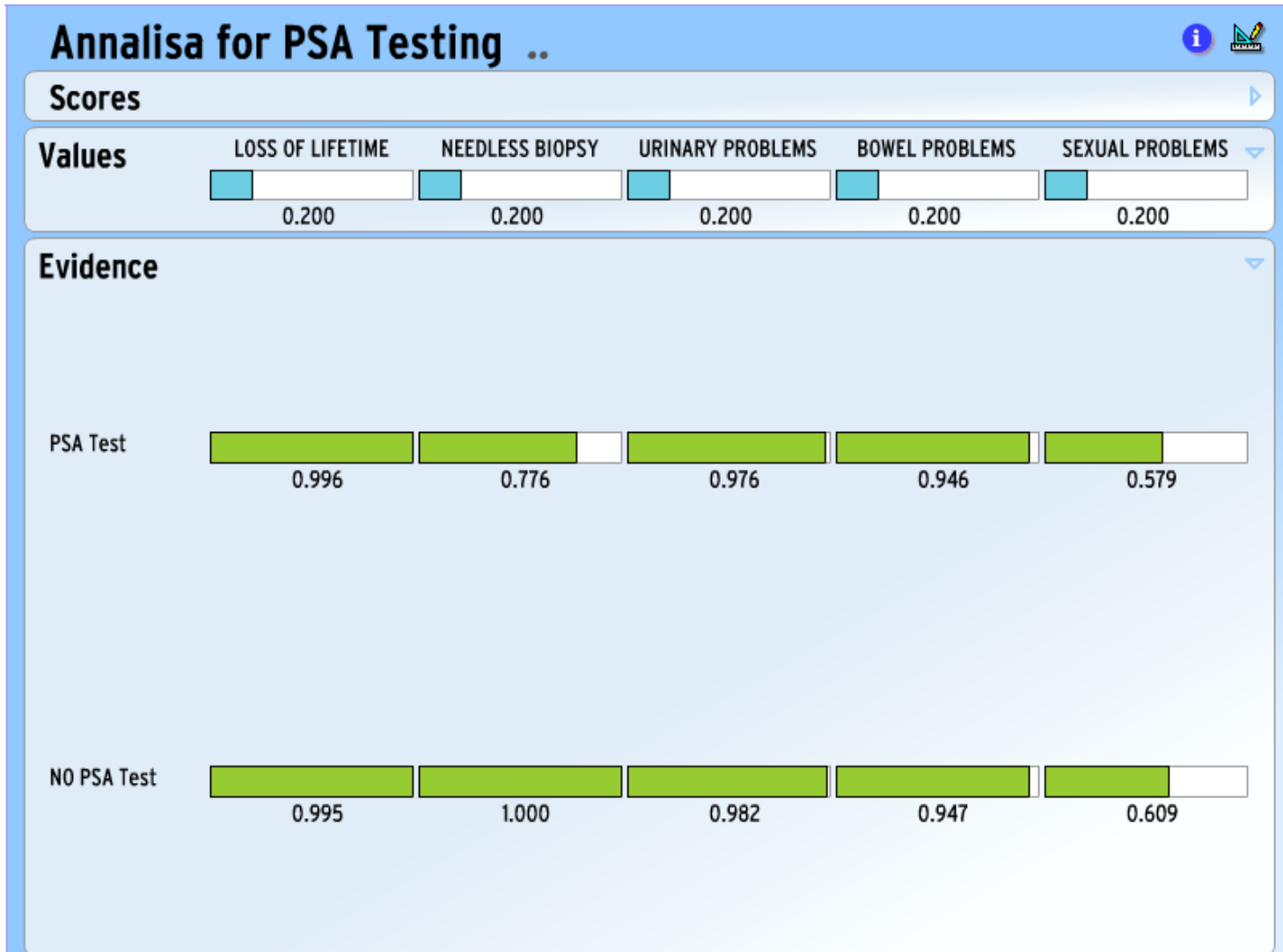
# Keep it simple



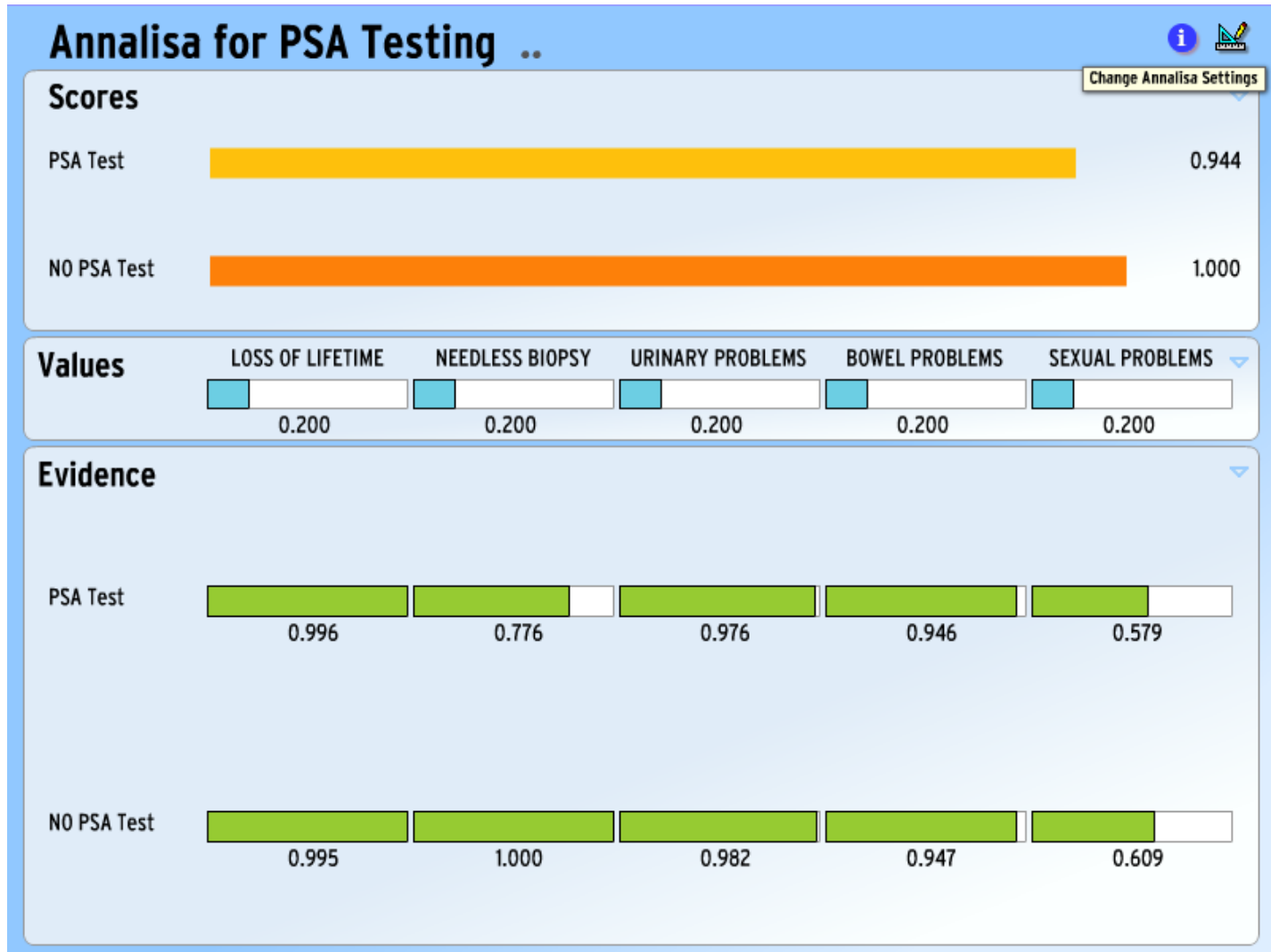
# Keep it simple



# Would you like to see the evidence?



# Reveal the scores



# Change the settings in Annalisa

**Annalisa for PSA Testing ..** Change Annalisa Settings

**Scores**

|             |  |       |
|-------------|--|-------|
| PSA Test    |  | 0.944 |
| NO PSA Test |  | 0.609 |

**Values**

|             | LOSS OF LIFETIME | NEEDLESS BIOPSY | URINARY PROBLEMS | BOW |
|-------------|------------------|-----------------|------------------|-----|
| PSA Test    |                  |                 |                  |     |
| NO PSA Test |                  |                 |                  |     |

**Evidence**

|             |  |  |  |  |
|-------------|--|--|--|--|
| PSA Test    |  |  |  |  |
| NO PSA Test |  |  |  |  |

Locking Mode

Locks Active

Attribute Orientation + -

Text Size A A A

Number Format 0.0 % /

Display Precision 0.111

Show Weight Normalisation

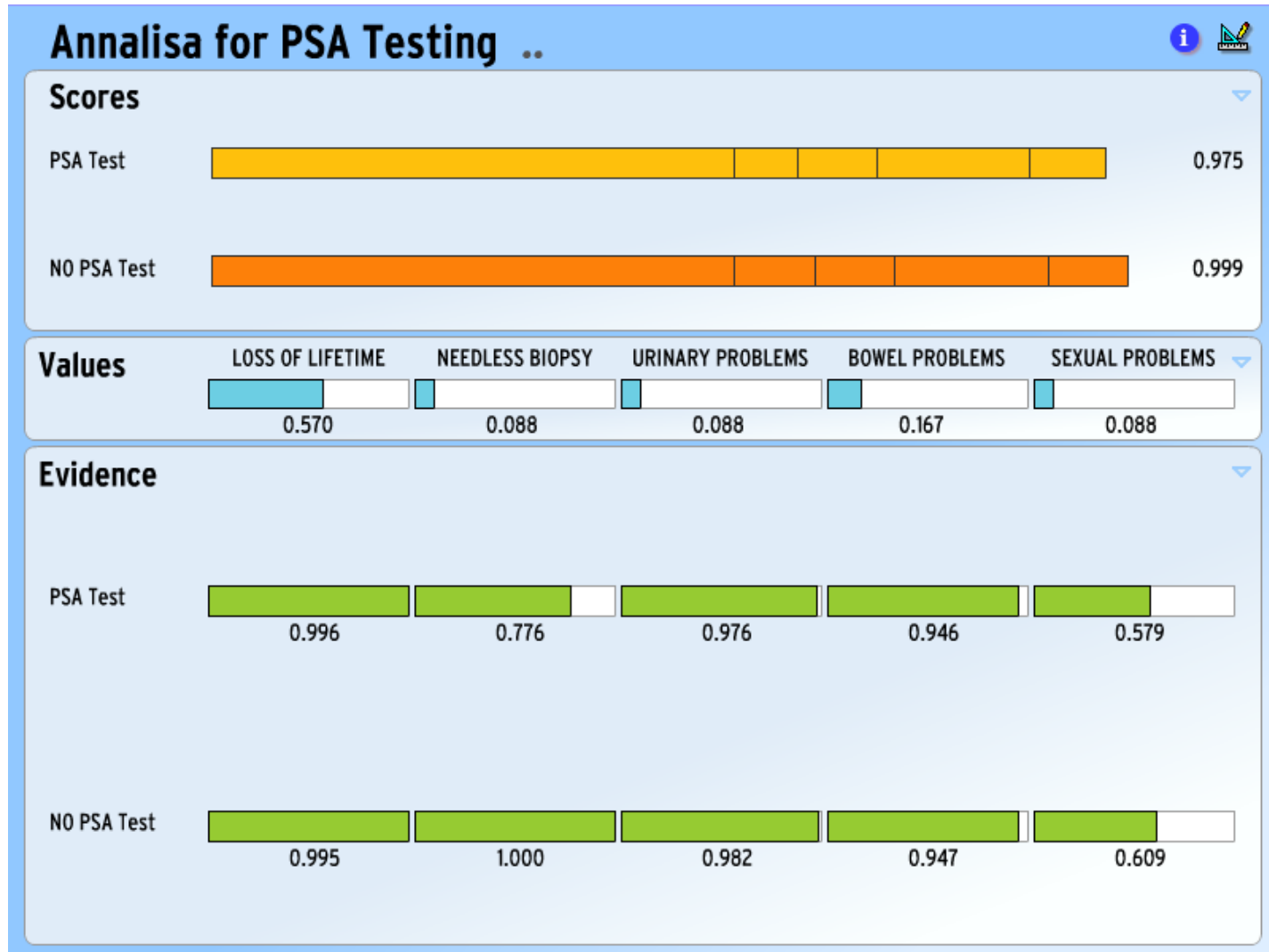
Show Score Breakdown

Score Type idealised

Language EVS

Credits 2008 Maldaba Ltd.  
www.annalisa.org.uk

# Show the breakdown of the score



Please respond to each item in relation to the decision you have just made about PSA testing and the process of making it

## My Decision Quality

My Decision Quality is a tool for YOU to assess - from YOUR perspective - the quality of a decision that has just been taken.

Please rate the decision you have just taken on each of these criteria.

|   | Strongly agree        | Agree                 | Neither agree/disagree | Disagree              | Strongly disagree     |
|---|-----------------------|-----------------------|------------------------|-----------------------|-----------------------|
| <b>OPTIONS</b><br>I am clear about the possible <b>OPTIONS</b> for me and what they involve   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>  | <input type="radio"/> | <input type="radio"/> |
| <b>EFFECTS</b><br>I am clear about the possible <b>EFFECTS</b> and outcomes of each of the options for me   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>  | <input type="radio"/> | <input type="radio"/> |
| <b>IMPORTANCE</b><br>I am clear about the relative <b>IMPORTANCE</b> of the different effects and outcomes for me   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>  | <input type="radio"/> | <input type="radio"/> |
| <b>CHANCES</b><br>I am clear about the <b>CHANCES</b> of the different effects and outcomes happening to me, including the uncertainties surrounding the best estimates           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>  | <input type="radio"/> | <input type="radio"/> |
| <b>TRUST</b><br>I <b>TRUST</b> the information I have been given is the best possible   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>  | <input type="radio"/> | <input type="radio"/> |
| <b>SUPPORT</b><br>I am satisfied with the level of <b>SUPPORT</b> and consideration I received throughout the decision process, especially in regard to communicating at my level | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>  | <input type="radio"/> | <input type="radio"/> |
| <b>CONTROL</b><br>I feel in <b>CONTROL</b> of my decision to the extent I wish  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>  | <input type="radio"/> | <input type="radio"/> |
| <b>COMMITMENT</b><br>I am <b>COMMITTED</b> to acting on my decision   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>  | <input type="radio"/> | <input type="radio"/> |



## My Score for Decision Quality

On the next screen you will see your 8 criteria Ratings in the bottom panel.

In the middle panel you will find the Weightings for these criteria that you provided earlier in My Decision Preparation

In the top panel you will find the Decision Quality Score that combines your Ratings and Weightings.

We suggest a score below 50% is not satisfactory, 50-70% is satisfactory to good, and above 70% very good to excellent.

### My Decision Quality



#### Scores

My Decision



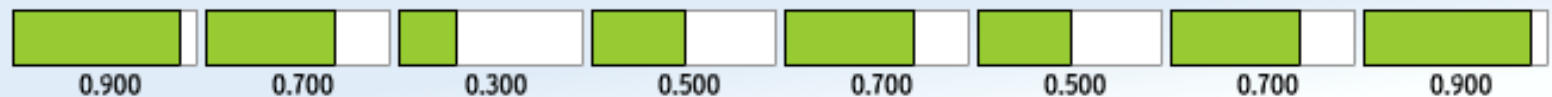
0.642

#### Weightings



#### Ratings

My Decision





# Making health decisions – it's a complex and imperfect world

