Collège des Economistes de la Santé HEALTH ECONOMICS STUDY GROUP London 4-6 January 2006

#### A new map of the world of public health and an ethical code for decision technologists, J. Dowie

Discussant : Prof. Robert Launois

28, rue d'Assas 75006 Paris – France Tel . 01 44 39 16 90 – Fax 01 44 39 16 92 E-mail : reesfrance@wanadoo.fr - Web : www.rees-france.com



## **Taxonomy of Technologies**

To produce knowledge and evaluate knowledge, we need a

#### **Knowledge Technology**

To establish what the values are and to elicit the judgement, we need a

#### Valuation Technology

To make a clinical decision and a public health decision, we need a

#### **Decision Technology**

To provide and communicate information, we need an

#### Information and Communication Technology



KT : RCT, epidemiology, decision analysis, experts panels, clinical jugements
VT : SG, TTO, VAS, HUI, EQ5D
DT : TIABIM, decision analysis
ICT: ppt, VC, e-health, HTA

## Tasks and Cognitive Continuum Theory

- Two basic types of thinking: "analysis" and "intuition"
- Those types are not exclusive but are combinable and combined
- The degree to which a task is undertaken and structured (value saturated or objective knowledge) induced the degree to which the thinking is analytical
- Six modes of cognition can be conceptualised on the continuum according to their intuition-analysis ratio and the structuredness of the task
- To be appropriate, the balance between intuition and analysis must be in line with the structuredness of the task

## Graphing the Continuum



#### The World of Jugement and Decision Making

#### **Republic of D-LAND**



# The World of Jugement and Decision Making

Champ de la Décision



## **Knowledge Technologies**

- Two questions "what do we know?"; "what should we do?"
- In the first case, the aim of research activity is completely "truth-focused". It seeks to remove all uncertainties: hard sciences (mode 1 and 2) and humanistic professional expertise (mode 6 and 5) are considered as alternative sources of certainty
- In the second case the research is "decision focused" (mode 3 and 4). The aims of this Middle Bayesian science is to represent uncertainty in the best way to help the decision maker to take a decision NOW

#### **Knowledge Technologies**

#### **Republic of D-LAND**



#### **Decision Technologies**

- INTUITION commonly used in a clinical context. It can be improved by scientific knowledge (mode 1 & 2) and a lot of «experience» from which clinicians learn to be absolutely confident in their own clinical judgement (mode 6).
- ASMR added medical value, RCP clinical guidelines, Conférence citoyenne health impact assessment take into account and bear in mind the results of hard KT (mode1 & 2) and the outputs of professional expertise (mode 6 & 5) But the TIABIM technology makes little use of the decision analysis KT output (mode 3 & 4). TIABIM used non-operational concept and confound KT and VT
- BAYESIAN DECISION ANALYSIS Bayesian analysis focus not just on the question "what is the effect of A vs. B" but "how this trial changes your opinion about A vs. B" Bayesian approach is thus an explicit quantitative use of external evidence in the interpretation of a study.

#### **TIABIM I: Experts Panels**

**Republic of D-LAND** 



#### **TIABIM II: Heath Assessment**

**Republic of D-LAND** 



#### **Bayesian Decision Analysis**

**Republic of D-LAND** 



#### Valuation Technologies

- Truth focused principles. Values are processed throughout general principles, « la rencontre d'une confiance et d'une conscience » and a consequentialist-utilitarian vision. The overall analysis is reduced to "a discursive qualitative weaving" made in the intuitive mode 5 & 6.
- Decision focused preference: Value differences and conflicts are explicitly taken into consideration and quantified with formal modelling of the preferences of all stakeholders.

## The Montourtier Declaration (1)

- 1. Clearly distinguish KT, VT and DT and resist any attempt by KTists and VTists to fulfil the role of DT
- 2. Accept that some maximand is always needed to make the best choice
- 3. Insist that any political constraint can be taken into consideration within this maximand
- 4. Recognize that probability and utility assessments are necessarily subjective
- Make clear that internal validity of KT results is often obtained at the expense of the external validity and does not fit the needs of the decision analyst
- 6. Recognize the analytical dual relation of adoption and research decisions

## The Montourtier Declaration (2)

- 7. Stress that the proper sequence for research is modelling first and conducting RCT after and not the other way round
- 8. Resist any attempt to treat DA as another input in a TIABIM process when DA should be treated as an independent entity
- 9. Refuse to accept that the quality of the decision analysis is affected by the limitation of the data
- 10. Refuse to let the decision maker to limit the structuring task power of DA using a time constraint argument in favour of less well structured alternatives
- 11. Refuse any criticism of decision analysis which is not set in the same stringe criteria to alternative instantiation of another decision technology
- 12. Counter at every opportunity any manifestation of "analytical decisionism"

## LESSONS FOR FRANCE

#### "Evidence Based Medicine: a TIABIM Label"

- 121 different scales for rating the quality of an individual study (Lohr 2004)
- 40 approaches for rating the quality of a body of evidence+Various types of meta analysis (Lohr 2004)
- 4 approaches for grading several body of evidence. "Chain of direct evidence constitutes indirect evidence". Should we use the lowest grade, the median, the mean, the grade of the most important link? (Luce 2005)
- There is nothing like a Benefit/Risk ratio.The value judgement between the two should be explicitly made (see the work of GRADES)

## Piggy Back study: The Wrong Vehicule

- Impossible direct comparison between all therapeutic options
- Truncated vision of the illness's evolutionary genius
- Negation of epidemiological and institutional local realities
- Scotomisation of decisive elements for the decision-makers

(adverse events, QoL, pathways and contacts, any information other than those relating to the size of effect )

#### Meta Decision Analysis: A Tool to be Used in First Line

- To structure the information in a single analytical framework
- To integrate simultaneously benefits, "risks" and costs
- To estimate quantitatively the frequency of evolutionary events and adverse effects
- To identify the pathways of the patient's management and to link the costs

... To Collect the Evidence and Estimate the Expected Efficacy and the Actual Effectiveness

- To synthesise heterogeneous clinical endpoints with a composite morbi-mortality index
- To reintroduce patients' preferences or citizens' wills in the decisional process at an individual or collective level
- To extrapolate the results to different populations or settings
- To isolate the key variables and to specify the uncertainty surrounding them
- To present the results to decision makers as probabilities for the intervention to be cost effective given a maximum willingness to pay per unit of effect

#### Conclusion

- The ideas of Jack Dowie are well known.
- To make them more explicit, the author of the paper illustrates them with graphics such that the interest of his Montourtier declaration becomes more obvious.
- His critics of the dominant TIABIM activities are well founded and its plea in favour of Bayesian decision analysis welcome.
- It seems to me that the didactic aims of the paper are perfectly reached, even if the vocabulary is sometimes tortuous.