

Matching Analyses to Decisions: Can we Ever Make Economic Evaluations Generalisable Across Jurisdictions?

Mark Sculpher

Mike Drummond

Centre for Health Economics, University of York

Better Analysis for Better Decisions, June 19-20, 2006

Policy context

Use of economic evaluation

- Policy landscape for resource allocation has changed over last decade or so
- Increasing use to support decision making
- Greater proportion of studies are undertaken to inform particular decisions by identified decision makers and a specific point in time
- Explicit link with decisions raises questions about analytical requirements

Policy context

Decisions are taken locally

- Extensive literature on geographical heterogeneity in economic evaluation
 - The extent of heterogeneity
 - Methods to quantify/handle it
- Explicit decision making using economic evaluation has given this greater focus:
 - Decisions are taken by jurisdictions or ‘below’
 - There is variation in what local decision makers need, think they need and can get
 - Evidence is generated internationally

Objectives of the paper

- Describe the analytical requirements of economic evaluation for decision making
- Assess how these might vary between jurisdictions
- Assess how much international variation in economic evaluation guidelines can be justified
- Consider ways forward for analysts and decision makers

Analytical requirements for decision making

Objectives and constraints

- Economic evaluation to help maximise an objective function subject to constraints
- Few systems clear about objective function
- Sub-system decision making may be inconsistent with 'bigger picture'
- Health gain explicitly or implicitly a dominant argument
- Equity arguments rarely explicit
- Budget constraints dominate – typically cross-specialty

Objectives and constraints

What should not vary between jurisdictions?

- The need for consistency in perspective and objective function
- Need for a generic measure of health gain

Objectives and constraints

What might legitimately vary between jurisdictions?

- Arguments (and their weights) in the objective function
- Budgetary arrangements (hence cost perspective)
- Existence and nature of other constraints

Analytical requirements for decision making

Specifying the decision problem

- Definition of relevant recipient groups
- Specifying intervention of interest
- Defining relevant alternative options
- Options may include strategies (e.g. sequences, starting and stopping rules)

Specifying the decision problem

What should not vary between jurisdictions?

- The need for a complete list of options
- Clear specification of the (sub)-populations of interest

Variability in methods guidelines

Choice of comparator (n=27)

Most commonly used	8
Existing, most effective or minimum practice	2
Existing or most effective	1
Justify	1
Existing and no treatment	2
Most common, least costly, no treatment	1
Most common, least costly, no treatment, most effective	2
Most common, least costly, most effective	1
Most likely to be displaced	1
Most efficient, most effective, do nothing	2
All relevant comparators	2
Most effective and no treatment	1
Not clear/specific	3

Specifying the decision problem

What might legitimately vary between jurisdictions?

- The specifics of the (sub-) populations
 - Licences
- The specifics of the alternative options
 - But what should be ruled out?
 - Licences

Analytical requirements for decision making

Use of evidence

- Multiple evidence needs for economic evaluations
- Needed to quantify parameters
- Need to be systematically identified and synthesised
- Clear principle to use all available evidence
- Need to reflect geographical heterogeneity

Use of evidence

What should not vary between jurisdictions?

- Systematic identification of evidence
- Use of all relevant evidence

Use of evidence

What might legitimately vary between jurisdictions?

- Evidence demands given decision problem
- Specific values for some parameters due to geographical heterogeneity

Analytical requirements for decision making

Decision making under uncertainty

- Presentation of results of analysis consistently with objective function and constraints: focus on expected values
- Need to reflect parameter (and structural) uncertainty in terms of decision uncertainty
- Strong normative basis to use decision uncertainty as a (implicit or explicit) basis for defining needs of additional research

Decision making under uncertainty

What should not vary between jurisdictions?

- Full specification of parameter and structural uncertainty
- Presentation of decision uncertainty
- Quantification of the value of further research

Variability in methods guidelines

Methods for sensitivity analysis (n=27)

Need to state and justify	3
Not stated/not specific	10
Probabilistic sensitivity analysis (PSA)	3
One-way, multi-way	1
One-way, two-way	2
Multi-way (of most important)	1
One-way, multi-way and PSA	5
One-way, multi-way and worst-best scenario	1
One-way with tornado diagram	1

Decision making under uncertainty

What might legitimately vary between jurisdictions?

- Measure of opportunity cost
- Factors determining the value of additional research:
e.g. size of the population
- Decision maker's control of additional research

Implications of analysts

Which type of analyst?

Seeking to inform multiple specific decision-makers



- The same analysis will not inform all decision makers
- Multiple analyses necessary
- Need for analytic flexibility
- For primary data collection: specification of patients, locations and data capture

Seeking to inform single specific makers



- Need to be specific about decision maker
- Still a potential need for multiple analyses
- Primary data collection: representativeness of sample

Common methods problems

- Flexible model structure to handle legitimate differences in specification of the decision problem
- Biggest issues around evidence synthesis
 - Reflecting heterogeneity in different types of parameters
 - Assumptions about exchangeability of evidence
 - Importance of access to individual patient data

Implications for decision makers

The problem of variable methods guidelines

Variation legitimate

E.g. Perspective, objective function, comparators, parameter estimates



Define and justify

Variation expected

E.g. Descriptive system for health, source of preference values



National and international reference cases

Variation inappropriate

E.g. Need to use all evidence, consistent perspective, generic measure of health



Education and training

Summary

- Greater use of economic evaluation for decision making has implications for analytical requirements of studies
- These requirements will vary between jurisdictions
- This imposes methods challenges
- Not all variation in methods guidelines is justifiable – international collaboration necessary