Getting evidence from economic evaluation into healthcare practice

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Supervisors: Dr Page, Dr Halton, Prof Graves
Centre of Research Excellence in Reducing Healthcare Associated Infections (CRE-RHAI)

Focused on developing and evaluating innovative, cost-effective, strategies to reduce healthcare associated infections in Australia.

The CRE includes a diverse group of researchers from clinical and academic fields, working together on projects that will translate into improved infection control decisions at clinical and policy level.

www.cre-rhai.org.au
**RESEARCH ON RESEARCH**

**VIDEO 2:** Potential changes to current funding systems

*New video:* AusHSI's Adrian Barnett and Nick Graves discuss changes to current funding systems.

Find out more

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**NEWS & EVENTS**

3 August 2015
Special guest seminar: How do we make decisions in health? Professor Peter Wakker

23 June 2015
AusHSI funded research on Electronic Snapshot for Outpatient Management of COPD (ESO-COPD)

18 June 2015
Research Fellow Position Available

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**TWITTER FEED**

15 Sep
@AusHSI
Panel talks about capitation, bundled care for chronic disease, what models could work? Sherbon—don’t fully forgo episodic care. #AHHAThinkTank

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The Australian Centre for Health Services Innovation (AusHSI) is building Health Services Research capacity by funding academics and health professionals to work together to deliver solutions to important health system challenges.

AusHSI offers training courses in cost-effectiveness analysis & statistics.
Mission Statement

AusHSI will build Health Services Research

Pursue innovative approaches to funding and managing research

Through training and skills development AusHSI will improve decision making

Strong Partnerships
Improve Health Services
Getting economic evaluation into practice

What makes it different to other research?
• Decision making tool
• Context-specific
• Economic and clinical divide

In Australia we don’t have NICE to help us
Getting economic evaluation into practice

1. Identify the barriers to using evidence from economic evaluations in healthcare decision making
   – Literature

2. Determine the relative importance of these barriers to healthcare decision makers
   – Discrete choice experiment

3. Identify the strategies used by health economists to overcome the barriers
   – Qualitative interviews
Getting economic evaluation into practice

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Literature review

• Searched EMBASE using synonyms for “economic evaluation” and “decision making”

• Inclusion criteria
  – Peer-reviewed journal articles
  – Reporting the perceived barriers and facilitators to using evidence from economic evaluation in healthcare decision-making
  – In English
Literature review

• 45 studies met eligibility
• 16 surveys, 21 interviews, 3 focus groups, 10 observation of meetings
• **Stakeholders**: doctors, pharmacists, hospital administrators, bureaucrats, HTA organisations
• **Settings**: North America, Europe, Asia and Australia
Accessibility

Acceptability
- Scientific
- Institutional
- Ethical

Adapted from Williams et al 2007
Accessibility

Timely access to relevant research that is understandable.

- Absence of relevant economic evaluations
- Time and cost of research
- Time to access
- Poor awareness of current evaluations
Accessibility - understanding

- Lack of training
- Language complexity
- Design complexity
- Variation in methods and presentation
Acceptability

Scientific, institutional, ethical acceptability
• Is the evidence correct?
• Is the evidence implementable?
• Are the findings fair?
Scientific acceptability

• Poor quality of research informing economic evaluations

• Concerns with methods
  – QALYs, measuring indirect and overhead costs, modelling assumptions, appropriateness of CE threshold

• Conflicts of interest
Institutional acceptability

Does the evaluation meet institutional needs?

- Difficulties transferring resources and adjusting budgets
- Narrow scope – not addressing, say, HR decisions
- Too broad to be relevant to individual hospitals
- Disinvestment of established technologies
- Potential economic benefits of interventions not being realised
Ethical acceptability

• Acceptance of explicit rationing
  – Individual (doctor-patient) ethic vs population ethic

• Excuse for cost cutting

• Evaluations rarely analyse equity impact
Accessibility - strategies

• Simplify language and analysis methods
• Standard formats for presenting economic evaluations (CRD programme)
• Training
• Economic evaluation databases
  – National Health Service Economic Evaluation Database
Scientific acceptability - strategies

• Good practice guidelines
• Improving quality of clinical evidence
• Reporting conflicts of interest
Institutional acceptability – strategies

• Involving all stakeholders
  – Increasing relevance of evaluations
• Flexible budgets
• Incorporating budget and resource allocation constraints
• Demonstrating direct benefit to the administrator or department
Ethical acceptability – strategies

• Community engagement
• Equity impact analysis
Getting economic evaluation into practice

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Discrete choice experiment

• Designed to elicit stakeholder preferences for economic evaluation
• Stakeholders: healthcare professionals, health administrator/manager, health researchers
• Attributes represent the distinguishing features of the economic evaluation
Scenario

Participants have to choose between two health economists who will provide cost effectiveness evidence to assist in making a decision to purchase a piece of equipment for the hospital.

The attributes will be the features that distinguish these two health economists.
## Identification of attributes

<table>
<thead>
<tr>
<th>Accessibility</th>
<th>Acceptability (scientific)</th>
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<td>Reporting equity</td>
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<td>Health economics training</td>
<td>Complexity of methods</td>
<td>Conflict of interest</td>
<td>Incorporating clinical need</td>
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<td>Assumptions and sources stated</td>
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<td>Applicability</td>
<td>More flexible budgets</td>
<td>All relevant stakeholder involved</td>
<td>Budget impact / resource allocation</td>
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Scoping survey (N=35)
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</table>

Scoping survey (N=35)
Levels

Quality of clinical evidence
  – Good, fair, poor (risk that bias, confounding, chance influenced results)

Quality of economic modeling
  – Good, fair, poor (accuracy given clinical evidence)

Length of time
  – 1 month, 6 months, 12 months
Levels

Communication (how easy to understand, unnecessary complexity)
  – Good, fair, poor

Equity (potential costs and consequences across socioeconomic groups)
  – Thorough analysis, mentioned, no consideration
Levels

Applicability (to decision making context – hospital, department or other)

– Specifically applied, Generally applied, not applied

Conflict of interest

– No conflict, independent with industry funding, employed by industry
Discrete choice design

• Forced choice
• Unlabeled (“Economist A”, “Economist B”)
• Orthogonal fractional factorial design in NGENE
• Two blocks of nine choice sets (+ repeat)
<table>
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<tr>
<th></th>
<th>Economist A</th>
<th>Economist B</th>
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<tbody>
<tr>
<td>Quality of clinical evidence</td>
<td>Fair</td>
<td>Fair</td>
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<tr>
<td>Quality of economic modelling</td>
<td>Fair</td>
<td>Fair</td>
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<tr>
<td>Length of time</td>
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<td>12 months</td>
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<tr>
<td>Communication</td>
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<td>Poor</td>
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<td>Equity</td>
<td>Mentioned</td>
<td>Thorough analysis</td>
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<tr>
<td>Applicability</td>
<td>Generally applied to context</td>
<td>Specifically applied to context</td>
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<tr>
<td>Conflict of interest</td>
<td>Employed by industry</td>
<td>Independent with industry funding</td>
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Administering survey

Piloted (N=15) for validity, readability, and applicability

Online (Keysurvey)

Recruitment through professional contacts and mailing lists.

Demographic and attitudinal questions
Analysis

Preferences were analysed using conditional (fixed-effects) logistic regression

Time was continuously coded (in months)
Other attributes were effects coded.

Time attribute used to calculate willingness to wait
Participants

94 accessed survey and answered all ten choice comparisons

• 67% female
Experience and attitudes regarding economic evaluation

42% had received training in economic evaluation (often a single or multi-day course)

17% had worked on an economic evaluation

32% had worked with a health economist

58% at least sometimes used cost effectiveness evidence in decision making
Results

Conditional logistic regression revealed a good model fit (McFadden’s pseudo $R^2 = 0.257$)

Significant preference for all attributes except reporting equity

– Although the “fair” rating wasn’t significant for quality of economic modeling and conflict of interest
– Preference for fair communication was negative
<table>
<thead>
<tr>
<th>Attribute</th>
<th>Level</th>
<th>Mean parameter (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of clinical evidence</td>
<td>Fair</td>
<td>0.24 (0.05, 0.44)</td>
</tr>
<tr>
<td></td>
<td>Good</td>
<td>0.71 (0.40, 1.02)</td>
</tr>
<tr>
<td>Quality of economic modelling</td>
<td>Fair</td>
<td>-0.12 (-0.34, 0.10)</td>
</tr>
<tr>
<td></td>
<td>Good</td>
<td>1.14 (0.86, 1.42)</td>
</tr>
<tr>
<td>Length of time</td>
<td>Per 1 month</td>
<td>0.06 (0.03, 0.09)</td>
</tr>
<tr>
<td>Communication</td>
<td>Fair</td>
<td>-0.44 (-0.69, -0.19)</td>
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<tr>
<td></td>
<td>Good</td>
<td>0.82 (0.48, 1.16)</td>
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<tr>
<td>Equity</td>
<td>Mentioned</td>
<td>-0.05 (-0.22, 0.13)</td>
</tr>
<tr>
<td></td>
<td>Thorough analysis</td>
<td>0.19 (-0.02, 0.41)</td>
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<tr>
<td>Applicability</td>
<td>Generally applied to context</td>
<td>0.48 (0.28, 0.68)</td>
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<tr>
<td></td>
<td>Specifically applied to context</td>
<td>0.59 (0.39, 0.79)</td>
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<tr>
<td>Conflict of interest</td>
<td>Independent with industry funding</td>
<td>-0.01 (-0.23, 0.21)</td>
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<tr>
<td></td>
<td>No conflict</td>
<td>0.75 (0.51, 0.99)</td>
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DCE key messages

There is a clear preference for economic evaluations to be good quality, and communicated well by a researcher without conflicts of interest.

Methodological rigour was valued, but didn’t dominate. Stakeholders were willing to trade rigour.

Stakeholders willing to wait for an economic evaluation that met their needs.
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Semi-structured interviews

Researchers who have developed economic evaluations (health economists)

Australia and the UK

Experience with recent economic evaluation and general reflections on getting research to practice
<table>
<thead>
<tr>
<th>ID</th>
<th>Country</th>
<th>Description</th>
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<tbody>
<tr>
<td>HE1</td>
<td>Australia</td>
<td>Health economics professor</td>
</tr>
<tr>
<td>HE2</td>
<td>Australia</td>
<td>Health economics professor</td>
</tr>
<tr>
<td>HE3</td>
<td>Australia</td>
<td>Health economist and senior research fellow</td>
</tr>
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</table>
Accessibility

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Adapted from Williams et al 2007
Accessibility

Similar contexts

• Sponsor was the funding/regulatory body making the decision

• Collaborators included health care professionals and funding/regulatory body representatives

• Not much engagement outside of group—low need based on the interventions.
Accessibility

Formats of the economic evaluation
• Formal report
• Presentation to group
• Summary document (sometimes)
• Dissemination
  – Manuscript
  – Conferences
  – Social media (not mentioned in interviews)
  – Collaborators as advocates
In all three cases the evaluation was a tailored service, with the internal report being the primary deliverable.

The published manuscript was an afterthought.

What matters more?
Improving accessibility to published economic evaluations?
OR
Improving accessibility to the service of economic evaluation?
Accessibility - Understanding

Knowledge of collaborators

- Variable, but learned quickly. Other knowledge invaluable.

- No official economic evaluation training provided
Accessibility - Understanding

Complexity

– Parsimony
– Appropriate language
– You don’t have to report everything

“Do uncertainty and scenario analysis so you’ve got that information there but not necessarily presenting all of that” [HE3]
Scientific acceptability

- “Get published in a high impact journal” [HE1]
- Scientific rigour (“defendable and justifiable” [HE2] )
- Expertise
- Qualifications
- Professionalism
- Bundling: Guidelines, governmental report
- Credibility of field: CE threshold
Quality of the collaboration

“Make sure you are researching a practice relevant question. You really want your question to be driven by people in practice and something that's a relevant problem.” [HE2]

“I think you have to build a relationship with whoever your formal or informal regulator is... If you just turn up to strangers and say "this is what I think you should do", I don't think the paper is going to change their thinking that much.” [HE1]
Collaborators’ knowledge of changing trends

“I think it's important to involve people who are likely to know the current trends in your area early on. And people who not only now current clinical practice but who are quite on the edge of clinical practice so that they know how things are changing over time. Things are fast changing of course, and what you are going now might be completely irrelevant in two years time.” [HE2]

Inconvenient results
Ethical acceptability

Social engagement
- Academic journals
- Traditional media (radio, newspaper, TV) and social media
- Public debates

Equity impact analysis and multicriteria decision analysis
Key messages

Already seeing more richness in suggestions for improvement

- Some issues are not going to be familiar to other stakeholders (CE thresholds, MCDA)
- Others are taken for granted (professionalism)
Conclusion

The process of getting evidence from economic evaluation into practice can be understood in terms of accessibility and acceptability.

There are multiple factors that influence accessibility and acceptability of evidence from economic evaluation. But they are not all equally important.

The factors are perceived differently by the producers of economic evaluations than by the users of the evidence.