

# Economic evaluation and KT: Thoughts on building a 2-way street

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# Disclosures

- I am not aware of any actual or potential conflicts of interest in relation to this presentation
- Some of my relevant current activities:
  - Scientific Director, BC SPOR SUPPORT Unit
  - Chair, CADTH's Health Technology Expert Review Panel
  - Member, CADTH's Economic Evaluation Guidelines Working Group

# Outline of session

1. Economic  
Evaluation



2. Knowledge  
Translation

3. Building a stronger  
resource stewardship  
culture

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# Economics 'pre-101'

- Central problem addressed: ***'Resource scarcity'***
- Central concept: ***'Opportunity cost'***
  - The value of the benefits forgone by choosing to deploy resources in one way rather than in their best alternative use

# Health economists are interested in both costs and health outcomes

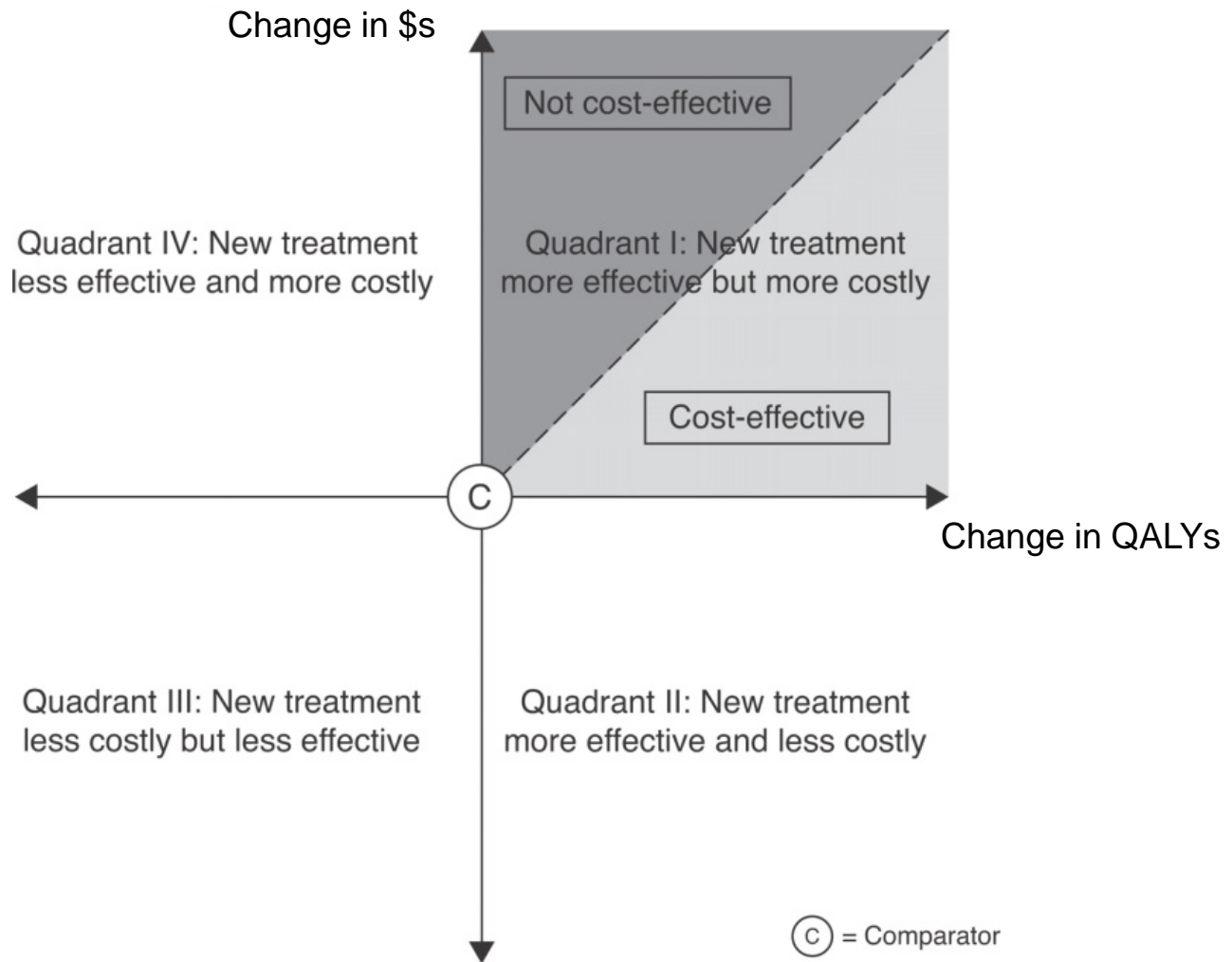


*And, in our continuing effort to minimize surgical costs, I'll be hitting you over the head and tearing you open with my bare hands.*

# Economic Evaluation

- *“Comparative analysis of alternative courses of action in terms of both their costs and consequences”* (Drummond et al. 1997)
- It makes explicit the total resources consumed and the benefits generated by competing courses of action





# HEALTH TECHNOLOGY ASSESSMENT

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## A systematic review and economic evaluation of exercise referral schemes in primary care: a short report

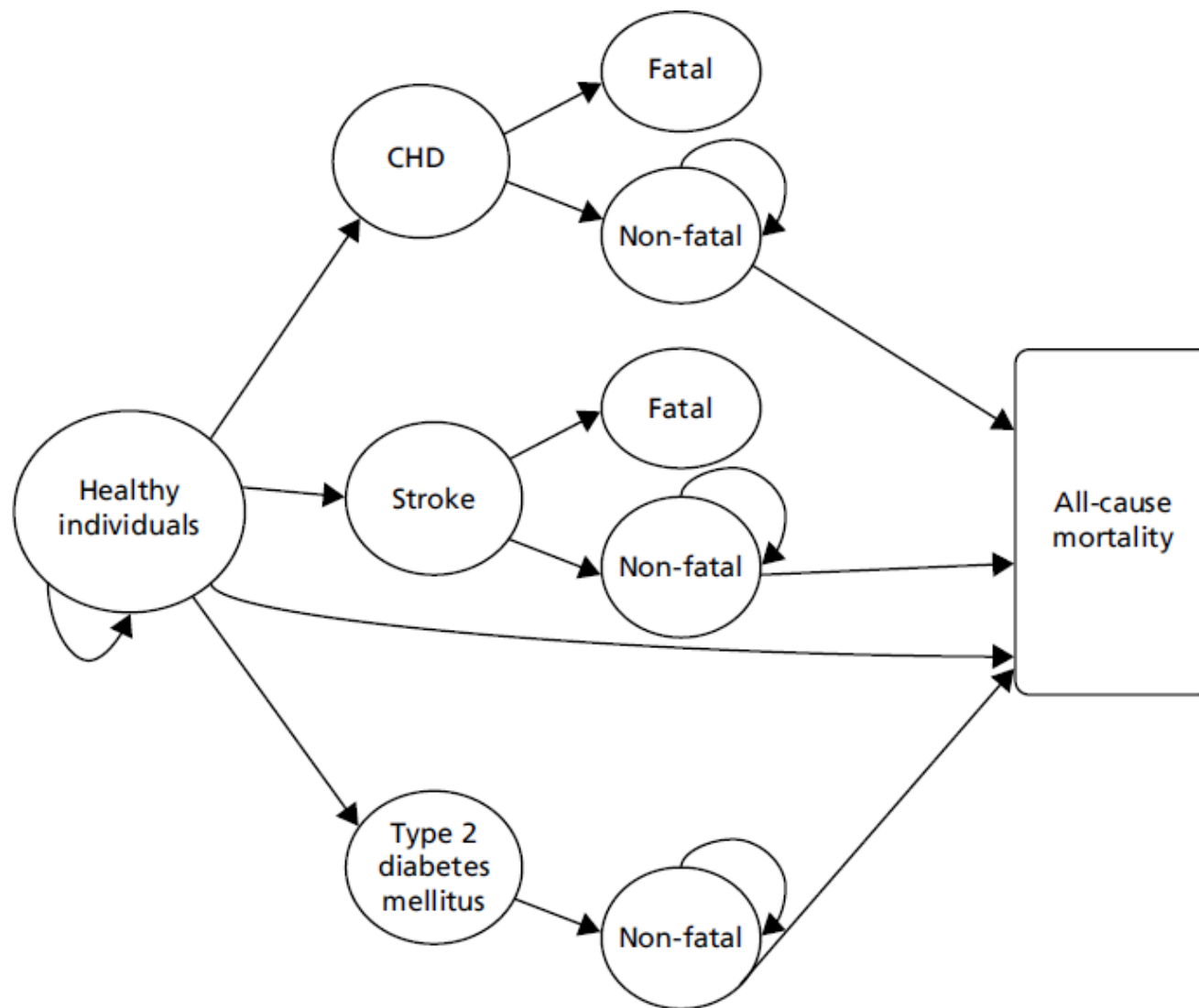
*Fiona Campbell, Mike Holmes, Emma Everson-Hock, Sarah Davis,  
Helen Buckley Woods, Nana Anokye, Paul Tappenden and Eva Kaltenthaler*

# Campbell et al (2015)

- Background:
  - Only 39% of men and 29% of women in England achieve recommended levels of physical activity.
  - One approach to addressing this problem: exercise referral schemes (ERSs)
  - Concern: they may not produce sustained changes in levels of physical activity and, therefore, may not be cost-effective
- Objectives: To assess the clinical effectiveness and cost-effectiveness of ERSs compared with usual care

# A decision model ...

- Has a structure to represent clinical pathways
- Allows synthesis of evidence to estimate costs and effectiveness
- Weighs up risks and benefits of an intervention
- Steps:
  - Structure the model
  - Populate the model (estimate probabilities, outcomes)
  - Analyse the model
  - Conduct sensitivity analysis



**FIGURE 16** Model structure from year 2 onwards.

Campbell et al (2015)

# Campbell et al (2015)

## Results

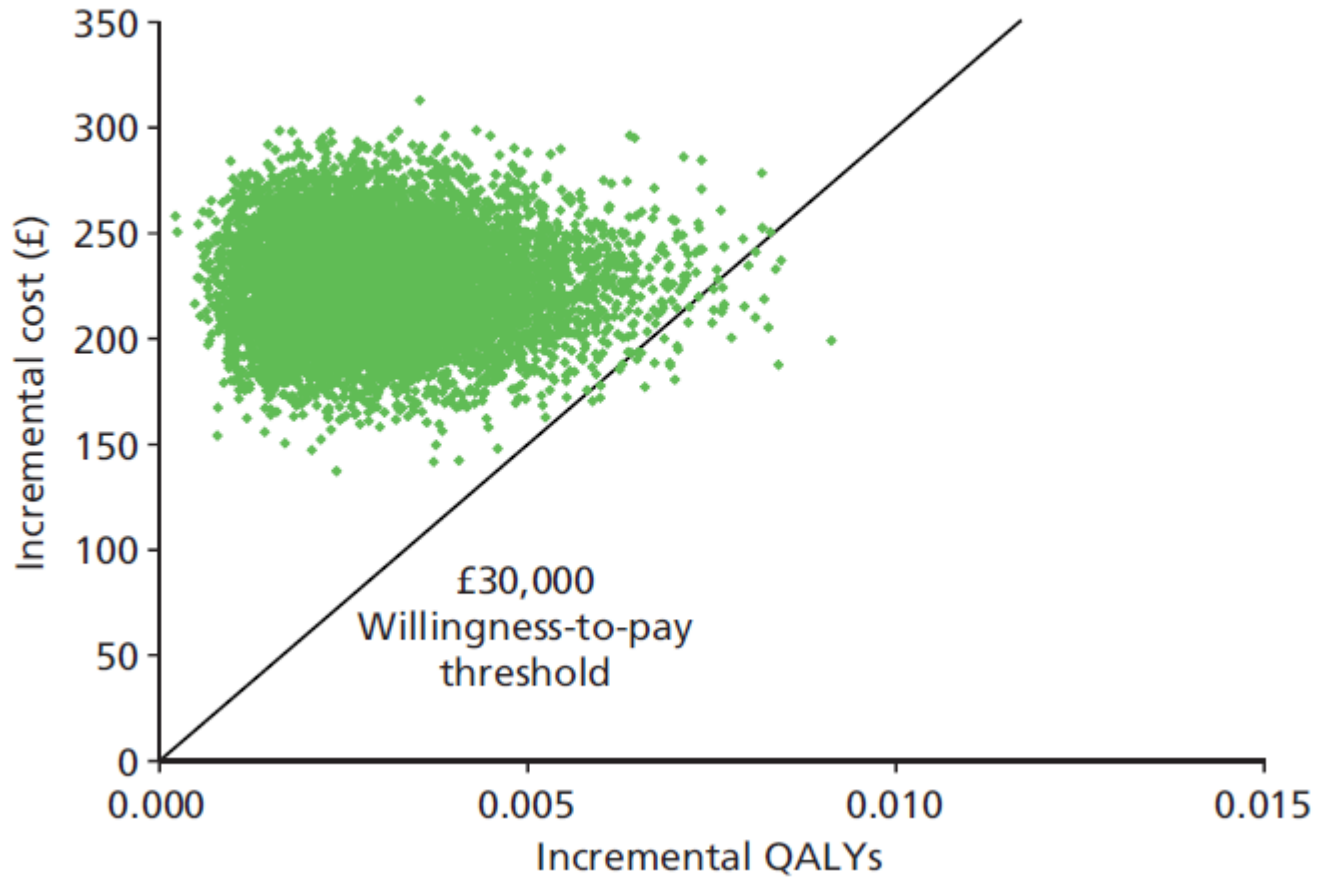
### *Deterministic results*

Table 33 shows the cost-effectiveness results per individual person based on point estimates of parameter values. The deterministic analysis indicates that ERSs are expected to produce a small health gain [0.003 quality-adjusted life-years (QALYs)] at an additional cost of £225 compared against usual care. This resulted in an incremental cost-effectiveness ratio (ICER) of £76,059 per QALY gained.

**TABLE 33** Deterministic results

Intervention	Mean cost (£)	Mean QALY	Incremental cost (£)	Incremental QALY	ICER (£)
ERS	4572	18.136	225.4	0.003	76,059
Usual care	4346	18.133	–	–	–

# Campbell et al (2015)



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# What is Knowledge Translation?

- Plethora of KT terminology – ‘Term turmoil’ (Holmes & Steinberg webinar):
  - Research utilization; evidence-based practice; implementation; knowledge mobilization; moving knowledge to practice; knowledge to action; impact; linkage; exchange; knowledge transfer
- Purpose (regardless of the name):
  - To address the gap between what is known and what is currently being done
  - Evidence-based (or evidence-informed) policy/practice

# KT according to CIHR

- *“A dynamic and iterative process that includes the synthesis, dissemination, exchange and ethically sound application of knowledge to improve the health of Canadians, provide more effective health services and products and strengthen the healthcare system.”*
- Implies co-building and thought towards what should be translated to which audience, thinking about how it will be used

# A new partnership in Canadian health research

- Researchers
- Patients
- Care providers
- Health system decision-makers



**Knowledge users**

# KT and economic evaluation

- Economic evaluation work is, by definition, about application
- Focus: to support resource allocation and inform reimbursement policy
- Typically focused on ‘payers’
  - thankfully patients are typically not payers

# Some health economics KT ‘success stories’

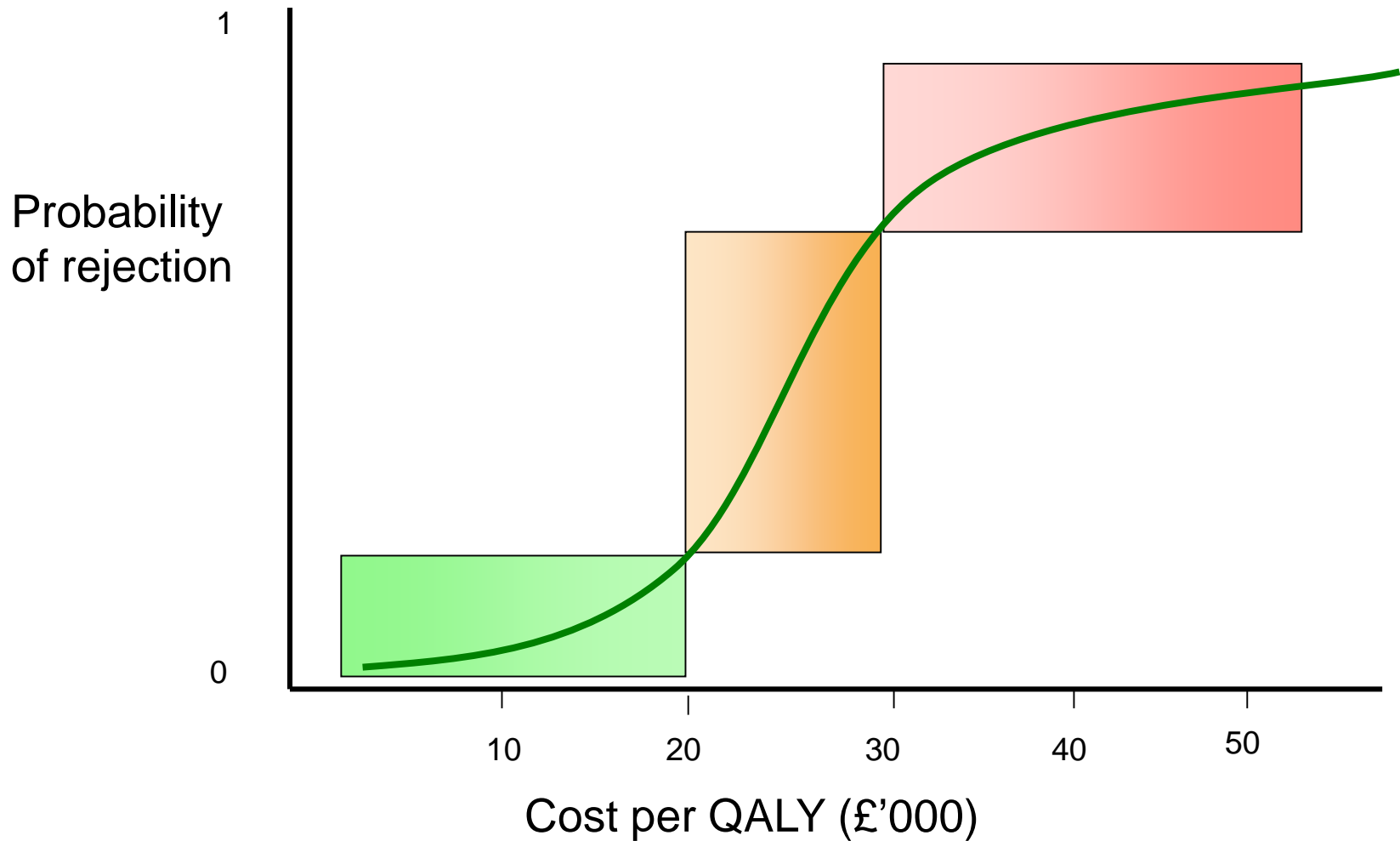
**NICE** National Institute for  
Health and Care Excellence

Scottish Medicines Consortium



**CADTH** Evidence  
Driven.

# NICE: Relation between CE and decisions



**CADTH METHODS AND GUIDELINES**

# Guidelines for the Economic Evaluation of Health Technologies: Canada

4th Edition

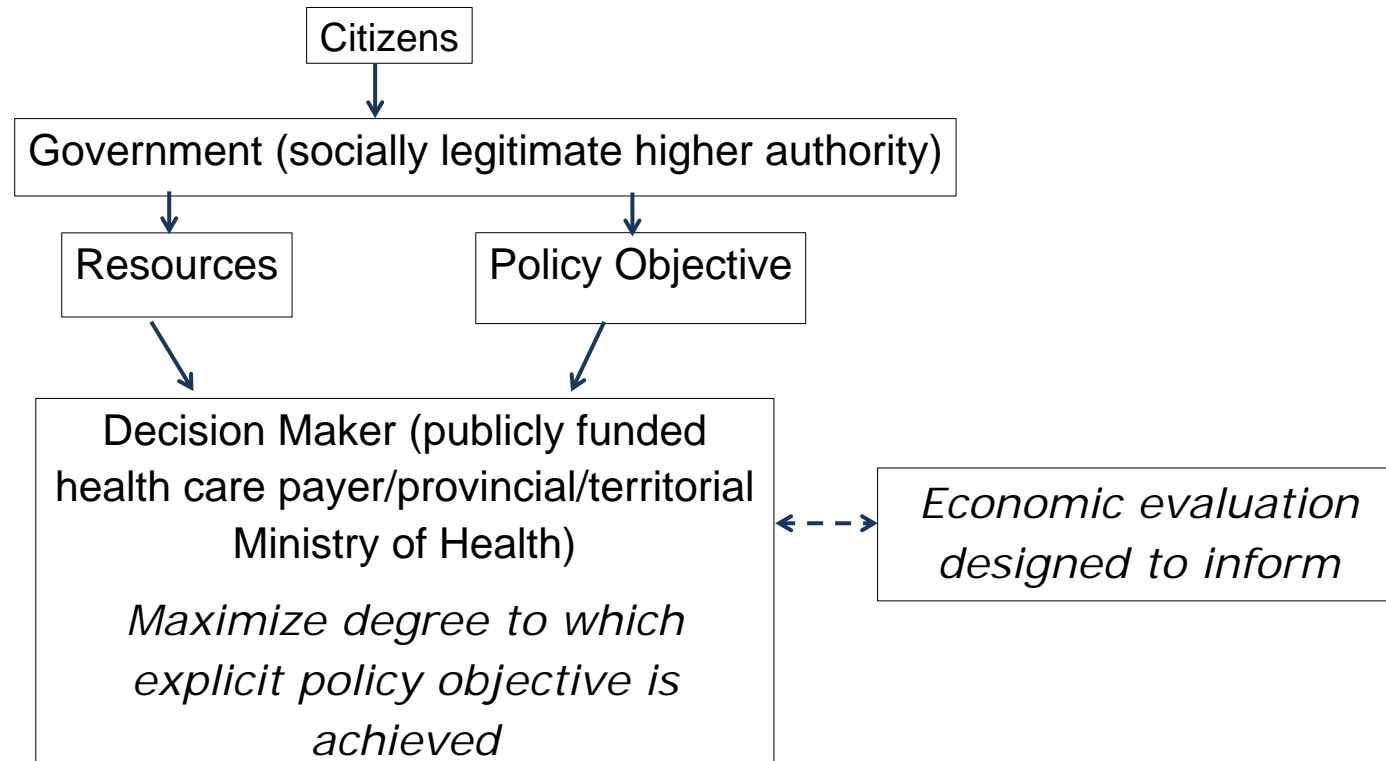
Service Line: CADTH Methods and Guidelines  
Version: 1.0  
Publication Date: March 2017  
Report Length: 76 Pages

# Key Changes

- ***Focus on the Decision Problem***
- Introduction of a Reference Case
- Highlight the importance of uncertainty
- Emphasis on transparency in methods and reporting



# Publicly Funded Health Care System



# Decision Problem

- Ensures the role of economic evaluation ***to support decisions***
- Specify the decision problem ***in consultation with clinicians, members of the target population, and the decision-maker(s)***
- Ensure that most relevant outcomes for each stakeholder taken into account

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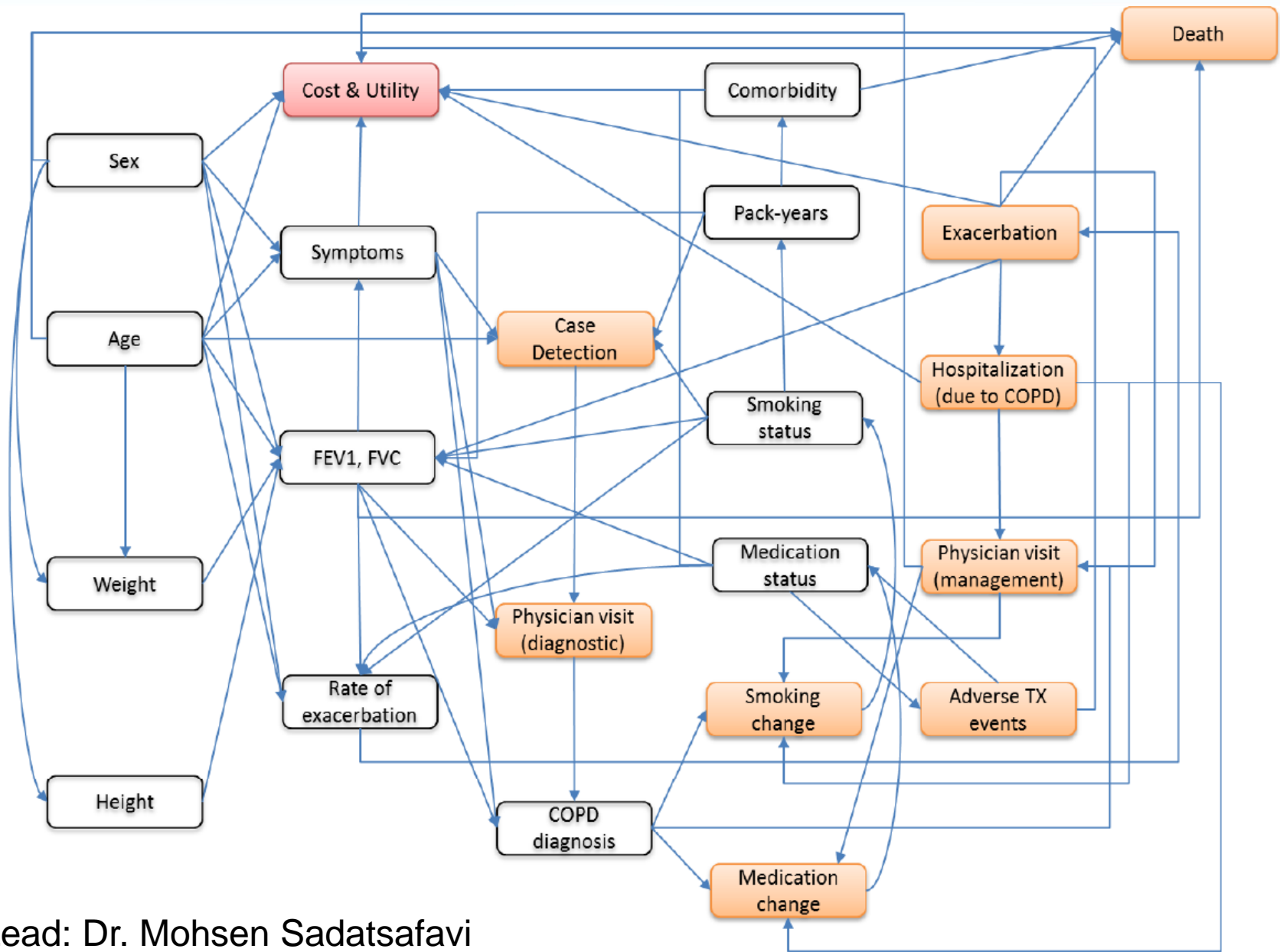
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# Building a stronger 'resource stewardship' culture

- 'Resource stewardship'
  - A setting where resource scarcity is openly acknowledged and recognized as a shared responsibility
- Pathway model development as a collaborative effort
  - Active engagement of, and ownership by, key stakeholders, including clinical leaders, policy makers, patients and analysts

# Pathway model: COPD



# Stewardship facilitated through pathway modelling

Clinical leaders  
and care teams



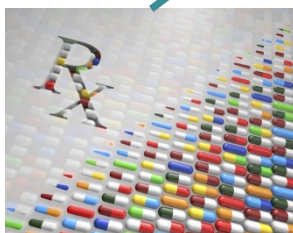
HTA analysts



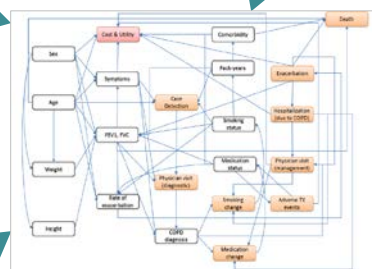
Policy makers and managers



Industry



Patients and carers



# Model building and patient engagement

Appl Health Econ Health Policy (2016) 14:129–133  
DOI 10.1007/s40258-015-0200-7



## CURRENT OPINION

### The Missing Stakeholder Group: Why Patients Should be Involved in Health Economic Modelling

George A. K. van Voorn<sup>1</sup> · Pepijn Vemer<sup>2,3</sup> · Dominique Hamerlijnck<sup>4</sup> · Isaac Corro Ramos<sup>5</sup> · Geertruida J. Teunissen<sup>4,6</sup> · Maiwenn Al<sup>5</sup> · Talitha L. Feenstra<sup>3,7</sup>

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**Abstract** Evaluations of healthcare interventions, e.g. new drugs or other new treatment strategies, commonly include a cost-effectiveness analysis (CEA) that is based on the application of health economic (HE) models. As end users, patients are important stakeholders regarding the outcomes of CEAs, yet their knowledge of HE model development and application, or their involvement therein, is absent. This paper considers possible benefits and risks of patient involvement in HE model development and application for modellers and patients. An exploratory review of the literature has been performed on stakeholder-involved modelling in various disciplines. In addition,

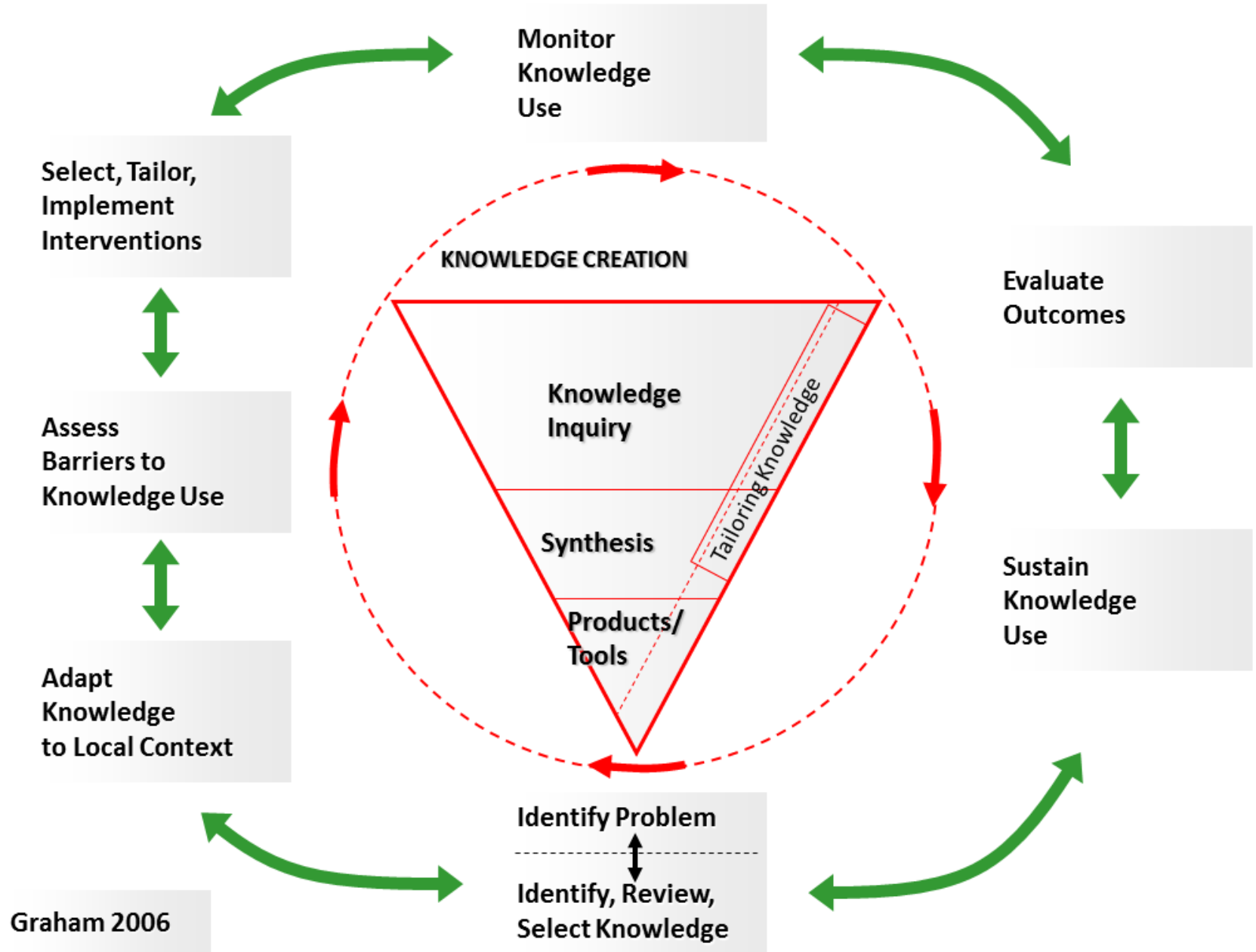
application. Benefits of becoming involved would include a greater understanding and possible acceptance by patients of HE model application, improved model validation, and a more direct infusion of patient expertise. Risks would include patient bias and increased costs of modelling. Patient involvement in HE modelling seems to carry several benefits as well as risks. We claim that the benefits may outweigh the risks and that patients should become involved.

Key Points for Decision Makers

# Building a stronger 'resource stewardship' culture

- 'Resource stewardship'
  - A setting where resource scarcity is openly acknowledged and recognized as a shared responsibility
- Pathway model development as a collaborative effort
  - Active engagement of, and ownership by, key stakeholders, including clinical leaders, policy makers, patients and analysts
- The reference pathway model defines the resource envelope
  - Constraints on pathway reconfiguration are transparent
- Proposed changes to the clinical pathway identified and evaluated using the reference model
  - Opportunity cost considered explicitly





# Final reflections

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thank you

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