

# Economic evaluation of physical activity interventions for decision-making

**Julia Fox-Rushby**

Professor of Health Economics  
Health Economics Research Group (HERG),  
Brunel University



[Julia.Fox-Rushby@Brunel.ac.uk](mailto:Julia.Fox-Rushby@Brunel.ac.uk)

Conference: Evaluation in a Nutshell: Turning theory into good practice Nov 2007

# Outline

---

- Economic evaluation
  - Why, what, & how
- State of the art of economic evaluation of physical activity interventions
- Next steps for research and evaluation

# Why economic evaluation?

---

- Scarcity of resources -> Choices
- Decision to fund or provide health care by governments implies need for planning

# Economic evaluation

---

- Definition :

“the comparative analysis of alternative courses of action in terms of both their costs and their consequences”

- Requires:

- a comparison of two or more alternatives
- examination of both costs and consequences

# Types of economic evaluation

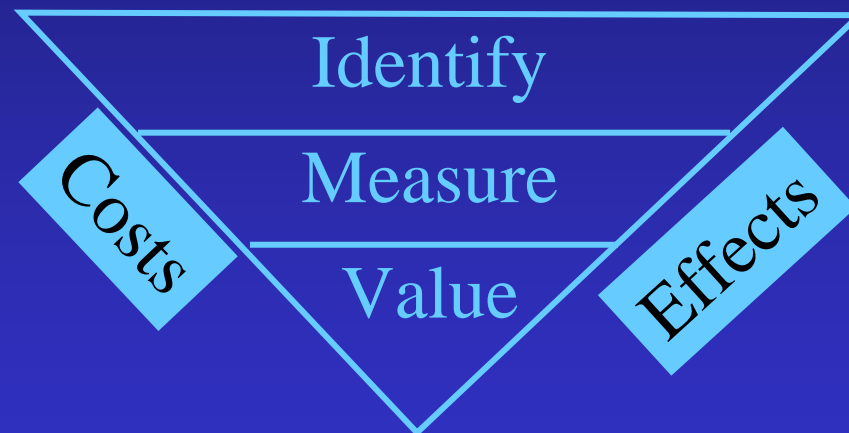
---

| Form of Analysis                           | Measurement of costs | Measurement of outcomes                |
|--|----------------------|--|
| Cost-consequences                          | Monetary             | Array or profile of different measures |
| Cost-effectiveness<br><i>within which:</i> | Monetary             | Single natural or clinical units       |
| Cost-utility                               | Monetary             | Quality-adjusted life years            |
| Cost-benefit                               | Monetary             | Monetary valuation                     |

# Main steps in economic evaluation

---

- Describe components of intervention and comparator

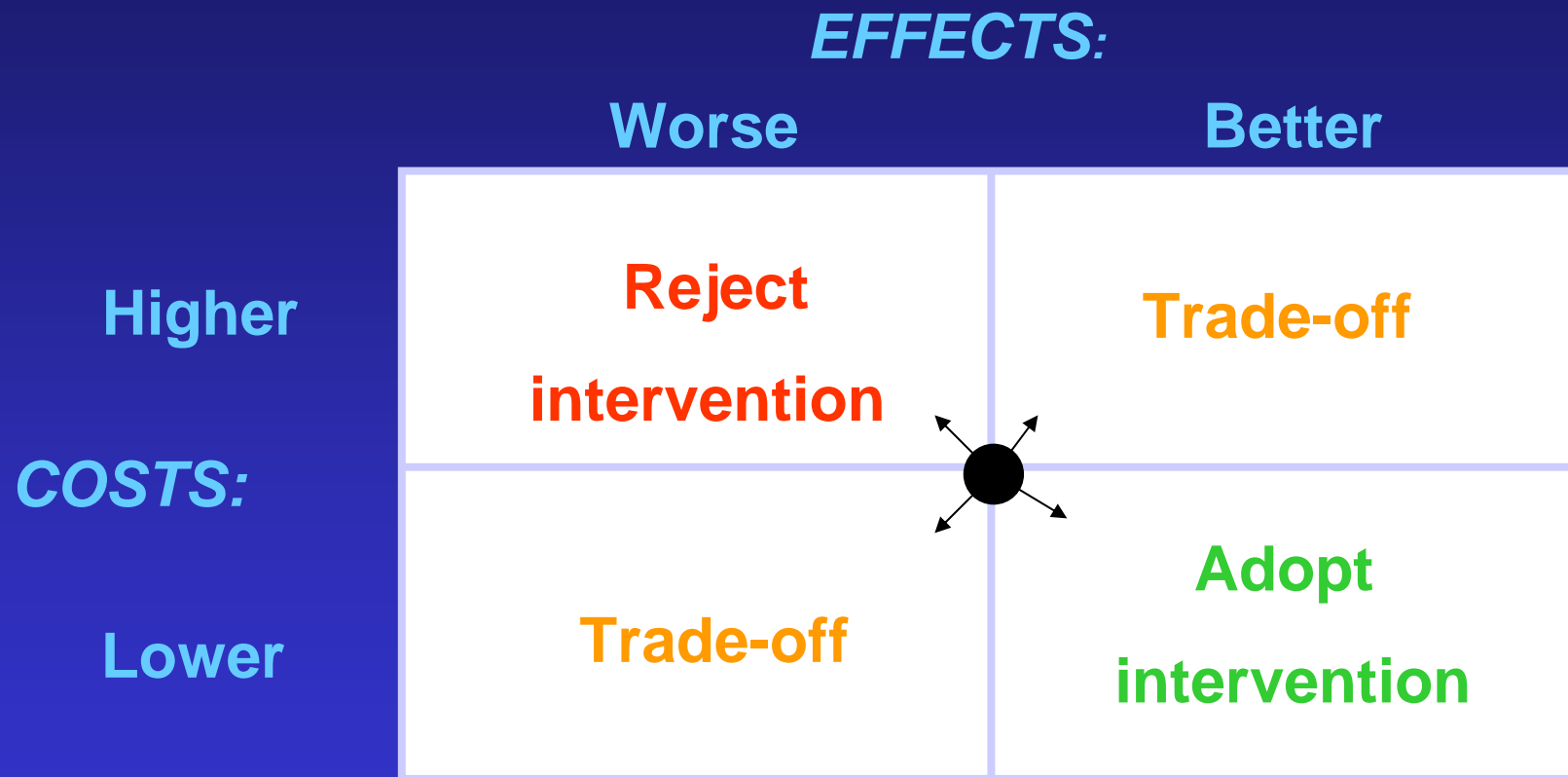


Cost Intervention – Cost Comparator  
Effects Intervention – Effects Comparator

- Test assumptions by sensitivity analysis

# Evaluation matrix: intervention vs. comparator

---



# Economic evaluation of physical activity interventions

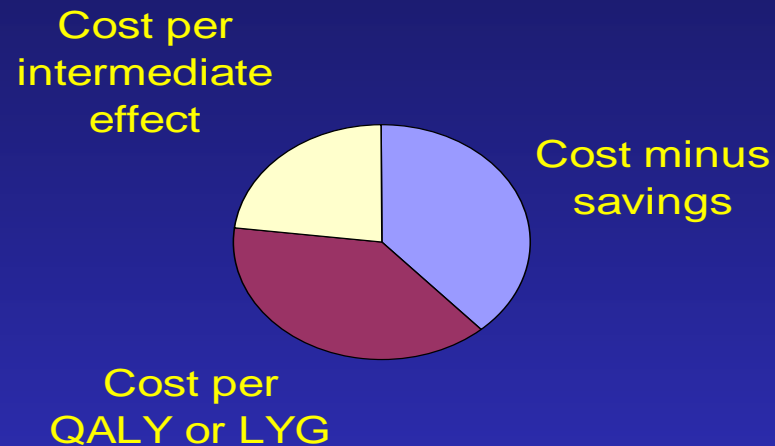
Hagberg & Lindholm (2006)

- Exercise (n=15) & advisory interventions (n=11) compared with:
  - Doing nothing (26)
  - Each other (7)
  - Usual care (2)
  - Drug (2)
  - Different version of same programme (1)
- Population:
  - General (10),
  - Disease specific (10),
  - Age specific (7)



# Hagberg & Lindholm (2006)

---



- 13 exercise & 7 advice interventions cost-effective (mostly in high risk groups)
- BUT 6 had no conclusion or were not CE



mostly when sedentary life = only risk factor



## Other evidence

---

- Many programmes have no evidence
  - e.g. pedometers, community level & complex interventions, economic instruments (tax, subsidies)
- Does exist for:
  - Work place health promotion
  - School based programmes
  - Combination programmes (e.g. with diet)
- NICE.....
  - Interventions often very cost-effective
  - Relatively robust for decisions in UK



# Problems with existing evidence

---

- Differences in, and poor quality of, methods
  - Costs borne by consumers often not considered
  - Effect measurement differs & often incomplete
  - Small studies with short time scales
  - Unjustified and untested assumptions
- Difficult to adjust for transferability
  - Inputs too aggregated
  - Little information re context

# Issue 1: Context and transferability

---

- Description of intervention
  - Characteristics of people (providers and target pop.), design, development and delivery
- Evaluation context
  - Literacy, tax and income levels, legislation, cultural values, access to media
- Presentation
  - Present disaggregated inputs and outcomes
  - Standardise e.g. NICE reference case



## Issue 2: Outcomes

---

- Intermediate outcomes
  - Link to final outcomes (life expectancy, quality of life)
- Impact on single vs. multiple diseases
- QALYs
  - But additional outcomes e.g. non-health benefits, impact on inequalities

## Issue 3: Role of individuals?

---

- From agent-led patient to 'healthy' sovereign
- Examine and account for individual behaviour
- More efficient to provide a range of interventions?

# Next Steps: Short term improvements

---

- Use systems (e.g. MRC) to describe complex interventions, comparators and context of evaluation
- CEA
  - Alongside effectiveness studies
  - Of the effective interventions first
  - On one disease first
- More 'what if' analysis
- Greater recognition of need to assess cost-effectiveness over long time periods



# Next Steps: Mid term developments

---

- Agree valid measures of intermediate outcomes & determining links to QALY changes
- Behavioural economics and economic evaluation
  - linking consumers costs (time and money) to decisions to comply and then effectiveness of interventions