Economic evaluation and policy

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The Economics of Medical Care

York conference proceedings1972

“The role of economics in the medical care system is understandably a matter of some controversy. It generates a suspicion that ruthless, profit-seeking tycoons will be turned lose in a field in which it is rightly felt that humanitarian considerations should predominate. It is also seen as a potential threat to ´clinical freedom´,….”

Foreword by Alan Williams

Some basic premises

- Resources in health care are not allocated in an efficient way
- Economic principles can be used to improve on this situation
- Economic evaluations at “program level” is an important tool for guiding decisions towards cost-effectiveness

What have we achieved in the last 30 years?

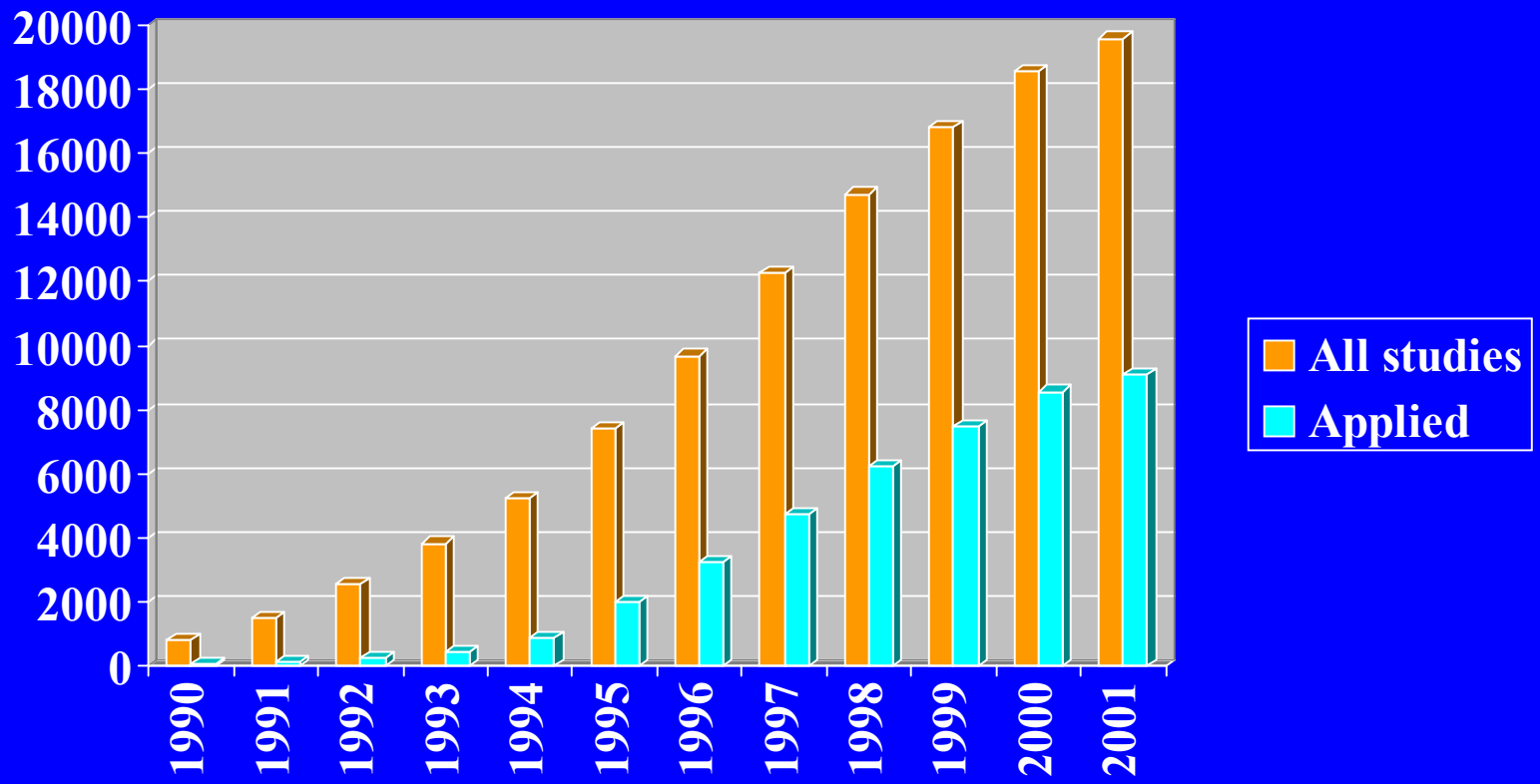
- The numbers
  - Studies and authors
- Theoretical developments
  - Do we have a set of agreed principles?
- Application
  - Quality and relevance
- Policy impact
  - Does anybody care?

A growing number of health economists

- Most health economists do economic evaluation
  - Within the health care system
  - Within the health care industries
  - As consultants
- Economic evaluation is less prominent in academic health economics
  - Few papers in leading journals

Number of published studies

As recorded in the HEED database



For which countries are the studies done?

Country	All studies	Applied studies
USA	6313	4820
UK	1846	1194
Mainland Europe	2807	1750
Canada	914	633
Australia	422	257
New Zealand	118	66
All other	850	711

Where do the authors come from?

Country	All	Applied
USA	6738	5071
UK	2074	1296
Mainland Europe	2175	1687
Canada	939	689
Australia/NZ	543	336
All other	427	393

Authors and applications?

A European perspective

Country	Authors	Applications
UK	1924	1704
Sweden	380	425
Netherlands	378	327
France	280	319
Italy	279	283
Germany	244	287
Switzerland	162	95

Theory: Cost-benefit analysis

- Human capital approach
  - Weisbrod (1960)
  - Mushkin (1958)
- Value of “life and limb”
  - Schelling (1968)
  - Mishan (1971)
- Contingent valuation

Contingent valuation
The expressed preference approach

- Developed in environmental economics in the 1960/70s
- Applied to value of life in the 1980s
  - Jones-Lee (1985), Viscusi(1992,1993)
- Developed for health care interventions in the 1990s
  - Johannesson (1996)
- Few applications so far

Theory: Cost-effectiveness analysis

- Klarman (1965)
- 1976 OTA USA "Development of medical technology: Opportunities for assessment"
- More acceptable to the health technology researchers, who where predominantly MDs
  - Avoid the stigma of valuing health and life in monetary terms

The cost-effectiveness ratio

CE ratio = C1 –C2 / E1 – E2

The Cost-effectiveness ratio

In search of the principles

- Define the alternatives 1 and 2
- **Define the costs to be included**
- **Define the effectiveness measure**
- Calculate the incremental cost-effectiveness ratio
- **Find a benchmark value for assessing if it is within a range that can be considered to be cost-effective.**

Theory: Cost-effectiveness analysis

- Alternative theoretical approaches
  - Extra welfarism
  - Explicit inclusion of equity criteria
- Welfare economic approaches
  - Garber and Phelps (1997)
    - Optimal insurer
  - Meltzer (1997)
    - Social perspective

The perspective of the study

- Social perspective
  - All health benefits are considered
  - All costs are considered
- Decision maker perspective
  - All health benefits are considered
  - Only part of the costs considered
    - Which part?

Social perspective on costs

1. **Direct costs** – resources used
   - Within the health care system
   - Outside the health care system
   - Informal care
2. **Indirect cost** –resources lost
   - Loss of production due to morbidity
3. **Cost in added years of life** – resources lost and used

Published studies after type of study.

The dominance of costing studies

- Cost-consequence analysis 5396
- Cost-effectiveness analysis 3691
- Cost analysis 3382
- Cost utility analysis 1244
- Cost minimisation analysis 1008
- Cost of illness 1003
- Cost benefit 395

Outcome measurement in cost-effectiveness analysis

- Surrogate endpoints
  - mm Hg, mMol Chol, BMD, IOP, etc.
- Events
  - MI, stroke, fracture, death
- Survival
  - # survivors, 5-year survival, life-years
- Quality (and quantity) of life
  - Quality adjusted life years (QALY)

The rise of the QALY
A major step forward

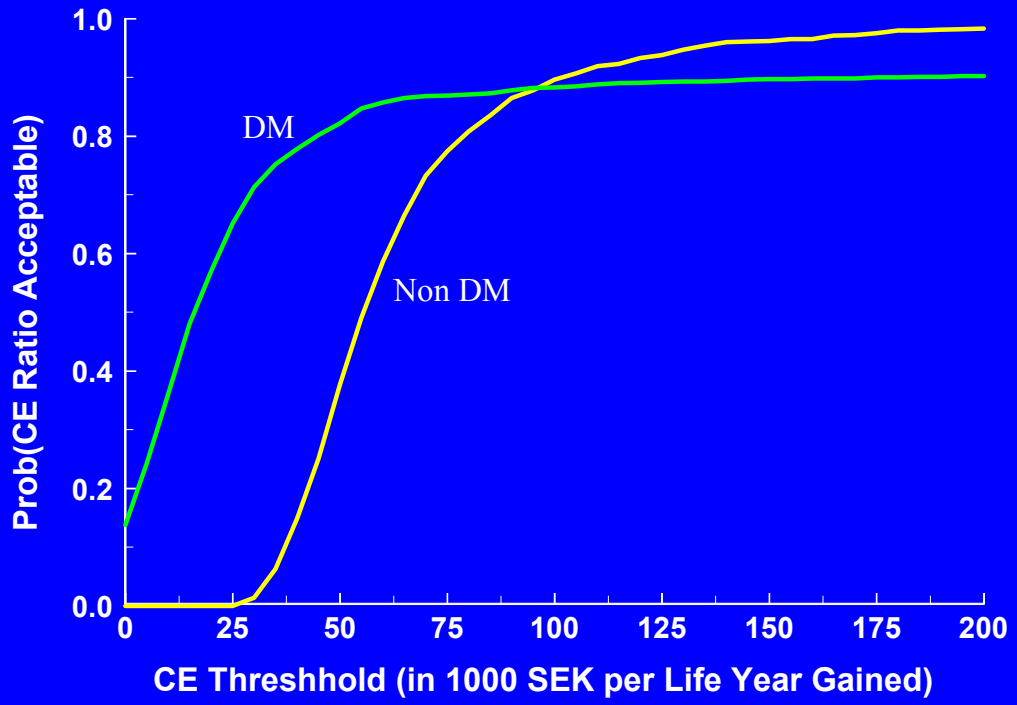
- Strong face validity
- Easy to understand and compute
- Strong empirical research agenda behind
  - EQ-5D and HUI
  - Assessment of health states with SG and TTO
- Not a perfect measure of health outcome or utility
  - But good enough

What is an acceptable cost per QALY?

- QALY league tables
- Definition of bench-mark value
  - NICE 30 000 UKP
- Willingness to pay
  - 500 000 SEK based on value of life estimates
- Important future area for empirical research

The return of cost-benefit

The acceptability curve



The practice

How well are we doing?

- Guidelines
  - They compensate for a lack of knowledge by those who do studies
  - They compensate for the lack of an appropriate text book
  - They are an instrument for certain interest groups to control a new and important field of health policy
  - They are there to make sure that decision makers gets unbiased, high quality studies organised in a way that facilitates review and decision-making

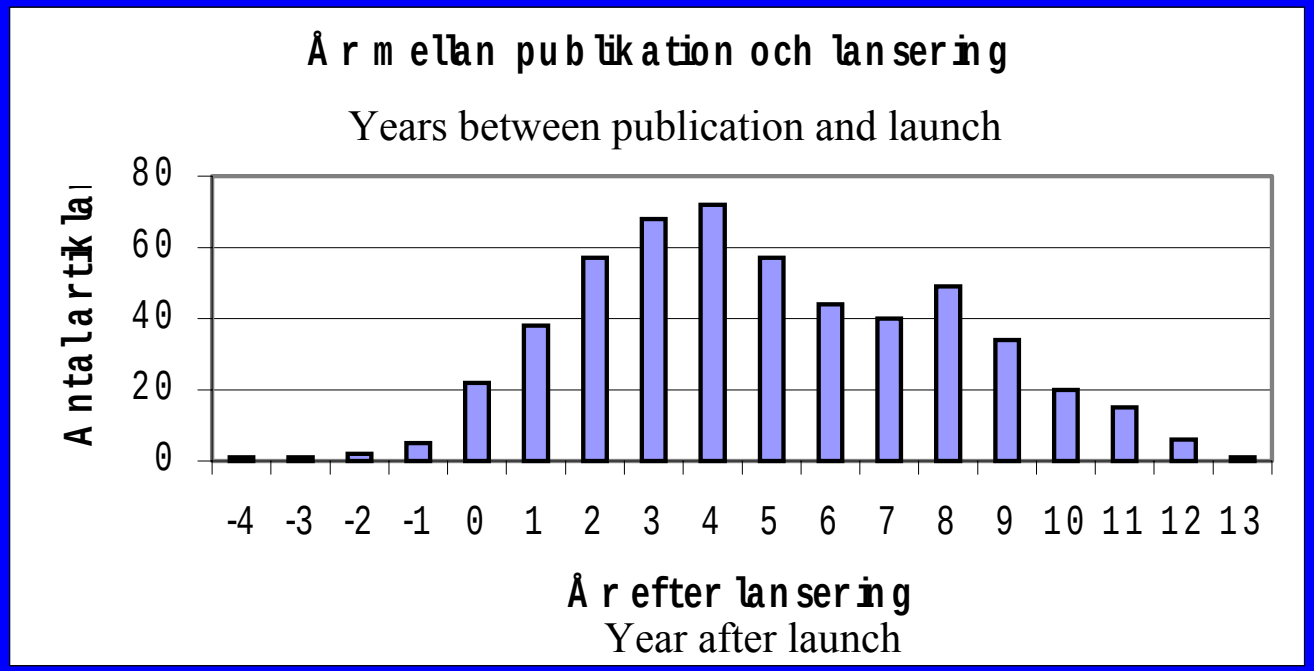
The practice

How well are we doing?

- Guidelines
  - They are there to make sure that decision makers gets unbiased, high quality studies organised in a way that facilitates review and decision-making
    - A necessary and sufficient tool?
    - Is standardisation enough?
    - Expressed versus revealed preferences for studies

The practice

Timing of published studies. NCE in Sweden 1987-1997



The practice

Five *common mistakes*

1. Inappropriate choice of alternatives and indications
   - A technology is never cost-effective in itself, only in a defined indication in comparison to the relevant alternative
2. No rational for the costs in included or excluded; “health care perspective”?
3. Calculation of average rather than incremental cost effectiveness ratios
4. Models used for simulating the consequences of the alternatives studies are not transparent and validated
5. Irrelevant outcome measures

Impact on policy

Doing better and feeling worse?

"This volume is a product of tension, of confusion and of dissatisfaction. ….The dissatisfaction arises because those most closely concerned with reviewing the performance persistently feel that despite so much effort, intelligence and goodwill at its disposal, the system still often respond in disappointingly erratic and inefficient manner."

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Economic evaluation and health policy
The achievements

- Significant improvements in theory and understanding of basic principles
  - Cost-benefit analysis
  - Cost-effectiveness analysis
- Significant progress in empirical application
  - CVM in cost-benefit analysis
  - QALYs in cost-effectiveness
  - Modelling and analysis of uncertainty

Economic evaluation and health policy
The achievements

- Large number of health economists trained in economic evaluation
- Large number of published studies
- Accepted framework for policy decisions
  - Regulation and HTA
- Strong influence on the basic perceptions of resource allocation in health care
  - Scarcity, choice and opportunity cost

Economic evaluation and health policy
The future

- Great expectations for contributions from economic evaluation to policy
- Management of expectations necessary
  - The mission is efficiency, not cost-containment
- A vital discussion of theory and principles
  - Our role is as educators, not accountants
- Data is key to credibility and policy impact
  - Early involvement of health economists in development of technology
  - Follow-up studies of consequences in clinical practice