Use of Cost-Effectiveness Analysis in Health Care

Applicable to Nutrition Interventions?

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Outline of Presentation

- A brief history of the use of CEA in health care
- Achievements of CEA
- Challenges for CEA
- Arguments for the use of CEA

A Brief history of the Use of CEA in Health Care (1)

- The general approach to economic evaluation, grounded in welfare economics, is cost-benefit analysis (CBA), where all costs and benefits are monetized.
- In the health care field there was a resistance to this because of :
  - unwillingness in principle to monetize health (eg place a value on human life)
  - concern about the income effects on willingness to pay, as equity is an important objective in health care
  - concern about individuals' cognitive skills in expressing their willingness-to-pay for health-related goods and services

A Brief history of the Use of CEA in Health Care (2)

- **1964**: first CEA study published, by Klarman *et al* on renal dialysis and transplantation
- **1972**: first conference on the development of preference-based measures of health, published in Berg(ed),1973
- **1976**: first use of the term 'quality-adjusted life-year, by Harvard University researchers
- **1987**: use of the term 'cost-utility analysis', by researchers from McMaster University, Canada
- **1990**: development of disability-adjusted life-year estimates by the World Bank and WHO
- **1991**: proposals by the Australian government to use cost-effectiveness criteria in listing drugs on the national formulary, implemented in 1992

Achievements of CEA

- Large number of studies published: currently the Tufts CEA Registry contains 8000+ cost per QALY studies and the Global Health CEA Registry 600+ cost per DALY studies
- Standard 'reference cases' developed by the US PHS Panel (aka 'Washington Panel') in 1996 and 2016; plus the Gates Foundation in 2016 (Wilkinson *et al Value in Health*;19:921-8)
- CEA forms the basis of the vast majority of official government/payer methods guidelines (https://www.ispor.org/peguidelines)

Challenges for CEA (1)

- The QALY can be biased against providing life extending therapy in the case of diseases causing disability
- There are several novel elements of value that are not captured by a standard cost per QALY analysis (eg option value, insurance value, scientific spillovers, equity considerations)

Lakdawalla et al (2018) Defining elements of value in healthcare—a health economics approach An ISPOR Special Task Force report[3].*Value in Health* 2018;21:131–9.

Challenges for CEA (2)

- In CEA there needs to be a decision-rule in order to interpret the incremental cost-effectiveness ratio (ICER)
- There is debate about how the decision-making 'threshold' should be determined

(eg based on the opportunity cost of health or the consumption value of health?)

Danzon, P. et al (2018). Objectives, Budgets, Thresholds, and Opportunity Costs—A Health Economics Approach: An ISPOR Special Task Force Report [4]. *Value in Health, 21*, 140 - 145.

So What Are the Main Arguments for Using CEA?

- In spending the health care budget, we should focus on the health benefits
- The main benefits of health care are the gains in length and quality of life
- The QALY is a metric that can be used, in a standardized fashion, for a sequence of decisions about health technologies in a range of disease areas
- The inadequacies of QALYs can be compensated for in a 'deliberative decision-making process'
- The alternative approaches, such as estimates of 'added clinical value', used in France and Germany for pharmaceuticals, lack transparency and decisions are hard to defend
- Nevertheless, improvements in approach are possible and should be considered on their merits (eg other stated preference approaches, such as Discrete Choice Experiments (DCEs) and Contingent Valuation (CV)

Should We Use CEA to Assess Nutrition Interventions?

- If the major expenditure is on the health care budget, decision-makers would want to compare cost-effectiveness with other possible health care investments
- In medical nutrition, interventions are often given alongside, or in support of, medical interventions; so it might make sense to evaluate them together
- CEA could be extended to assess interventions in multiple sectors, by considering a broader (societal) perspective and developing an impact inventory of effects in the various sectors (Walker *et al, Applied Health Economics and Policy* 2019;17: 577-90).