

Why Do/Should We Do Economic Evaluation?

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KEY POINTS . . .

Setting a health care budget determines the threshold and setting the threshold determines the budget.

Using only cost-effective technologies maximises the impact of health care on people's health. Anything else causes shortfalls in the health of the people and should be undertaken only for good reasons.

New high-cost but low productivity technologies displace better ones and reduce the overall health of the people.



The following article is based on a presentation given during the Third Plenary Session, "To What Extent Should Value For Money Derived From Health Economic Analysis Be Used In Health Care Policy Decision Making?," at the ISPOR 19th Annual International Meeting, May 31-June 4, 2014, Montreal, QC, Canada

To what extent should value for money derived from economic analyses like health technology assessment (HTA) or cost-effectiveness analysis be used in health care policy decision making? There is a short answer to that: quite a lot. Let me explain.

The importance of economic evaluation within health care decision making may be illustrated by considering the creation of an integrated public health insurance and health care program. My ideal system would seek to maximize the population's health and to do so fairly (equitably). In my ideal system, subscribers would be promised that when they fell ill, they would receive only treatments that work. Care would be provided without co-pays or deductibles other than trivial ones and with exempt categories of needy people. The program would treat every individual fairly and would introduce new benefits in a fair and transparent way for all stakeholder groups. Premiums would be set according to ability to pay. The most fundamental guiding principle for investment decisions, however, would be to provide only treatments that worked. Evidence, especially regarding the effectiveness of health interventions, would be necessary in order to understand which interventions work better than others (i.e. relative effectiveness). But that would not be enough. I would need to know those interventions that were more or less cost-effective as well. Interventions would be ranked so as to include only those that outperform others. The excluded items from the benefit package would be those that offer relatively little health to members, especially if it was only provided at great cost. Effectiveness would be measured to enable comparisons across technologies using outcome measurements such as quality-adjusted life-years gained (QALYs) or disability-adjusted life-years averted (DALYs). Information regarding

costs would be vital for judging relative cost-effectiveness. An inclusion-exclusion criterion (threshold) for technologies (commonly called an incremental cost-effectiveness ratio – ICER) – threshold, would be used. There would be procedures for handling technical and clinical disagreements in the absence of evidence, or when the evidence was poor or absent, through a deliberative process. Similarly, a process for addressing issues relating to fairness would exist.

Effective procedures are not necessarily cost-effective.

Economic evaluation in my ideal system should therefore not normally be limited to questions only of economic efficiency but would also encompass factors such as fairness, financial protection, budget impact, and general manageability at the service level.

Let us focus on the merits of efficiency. Figures 1-3 illustrate the interventions included in and excluded from my plan. The vertical axes measures health benefits (say in QALYs per \$1000). This is the inverse of the cost-effectiveness ratio. Annual health expenditures are along the horizontal axis. The annual budget is determined either by the anticipated stream of premiums or by governmental allocations, which may be set by a provincial (state) or federal authority depending on the jurisdiction. Ranked from left to right in the figure, technologies are plotted according to their health benefit per \$1000. The width of each band represents the amount of expenditure on that particular technology. All technologies to the left of the budget line are included in the benefits package. The least effective technologies in the bundle of insured services determine the threshold health gain per \$ permitted by the budget. If the budget rises, the cost-effectiveness ratio rises (health gain per \$ falls) and if it falls, the cost-effectiveness ratio falls (health gain per \$ rises).

Suppose now that four new technologies come along. These are shown on the right in Fig. 1. Two of them are better than some

Figure 1. Technologies Ranked By Cost-Effectiveness and Affordability.

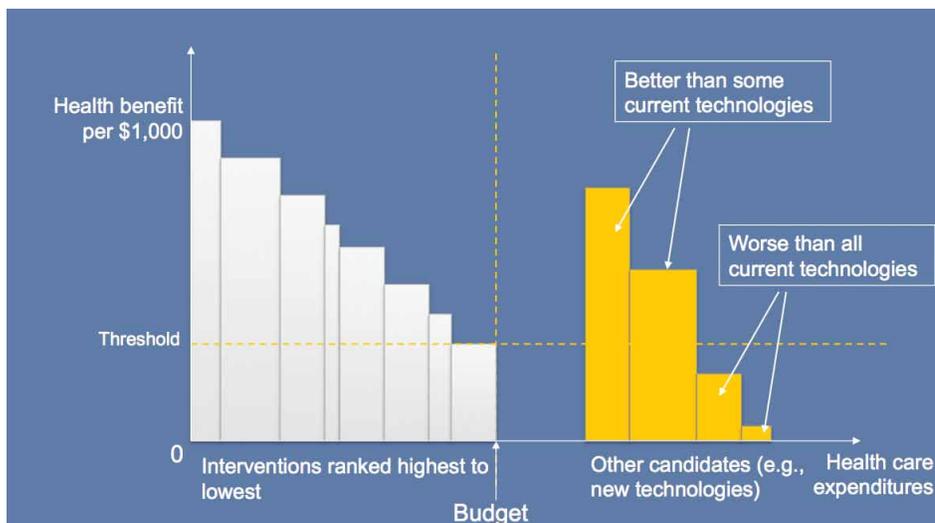
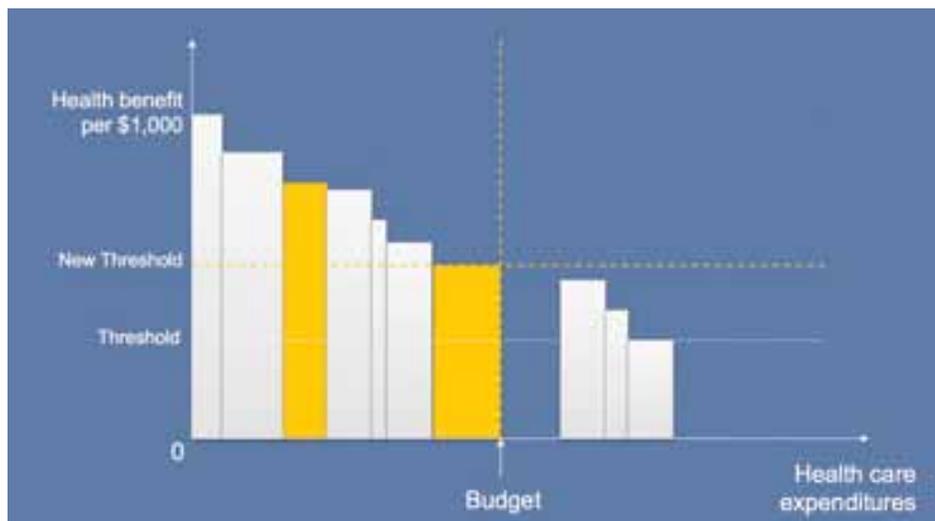


Figure 2. Incorporating New Cost-Effective Technologies and Disinvesting.



of the current technologies and two of them are manifestly worse than any already in the package. The two with health gains per \$ lower than any already in the insured bundle are not going to be included in the insured benefits. The other two are superior to several that are already included. Given that my strategy is to maximize the health of members of my plan, the two highly cost-effective technologies are included but, given a constant budget, the least productive of the existing included technologies must now be eliminated through disinvestment.

The resultant population health gains are shown in Figure 3, which compares the two profiles of health gains before and after the introduction of the new technologies. This contains the essence of the argument for economic efficiency in health care: being

efficient increases people's health. The right kind of innovation increases health. In this case, what we are being efficient at is maximizing the impact of health care resources on health as measured by an agreed indicator (such as the QALY). We are not necessarily maximizing people's utility or other dimensions of whatever one considers to be 'social welfare'.

We can now note the significant implications of this analysis:

- Health gain per \$ is the inverse of the cost-effectiveness ratio.
- The threshold health gain per \$ is determined by the budget and the most cost-effective interventions available.
- The most cost-effective interventions increase population health. Merely efficacious or effective technologies may

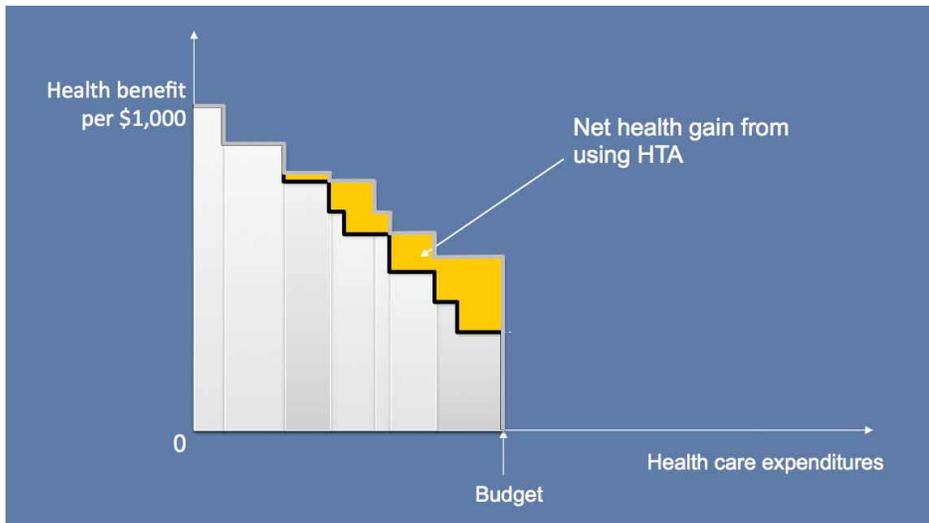
or may not enhance population health. Effective procedures are not necessarily cost-effective.

- As interventions that outdo the threshold are added, the threshold rises, or when thinking of the threshold in terms of an ICER, it falls, given a constant budget.
- If the budget rises, however, the ICER threshold can be held constant, or indeed increased for sufficiently generous budget increases.
- You can set the threshold or the budget but they cannot each be done independently of the other (if you are a health maximizer).
- It is irresponsible to set a high ICER threshold that is inconsistent with the health care budget. An ICER threshold set too high relative to the budget (as is usual when an arbitrary fraction of GDP per head is used) will admit many more technologies than can be afforded, with arbitrary consequences. This necessarily entails reductions in population health. Unfortunately, this is a common mistake – and one committed by the World Health Organization (WHO).
- Innovation is to be encouraged provided it generates relatively cost-effective procedures or that the budget can be expanded to cope with less cost-effective procedures.
- In general, with a fixed budget, less productive interventions must be excluded, making the development of disinvestment skills essential.
- The true opportunity cost of new health care investments can be measured in terms of forgone health gain due to the withdrawal of other less productive investments. These opportunity costs are inescapable but it is important to minimize them.
- Inevitably, there will be individuals who will lose from disinvestment: those who were benefiting from the lost treatments, their manufacturers, and those who acquire an income from prescribing or delivering those services.

The question arises: Is all this fair or equitable?

There are two great principles of distributive fairness. Horizontal fairness is one, which requires that people with an equal claim (say, equal need, or equal deservingness) should obtain equal treatment. This is sometimes described as a QALY=QALY=QALY. Vertical fairness requires that people with greater claims

Figure 3. Net Health Gain from Using HTA to Promote Efficiency.



should get more favorable treatment and people with lesser claims receive less favorable treatment. If a QALY is to be counted as equal whoever has it, then we have a principle of horizontal fairness. If we regard some people (for example, those near death, children, expectant mothers) as more 'deserving' than others, then giving their needs priority would be a case of vertical fairness. The best way to handle issues of vertical fairness is to weigh the benefit differentially. Horizontal fairness, however, requires that people who are the same in the relevant respect (being near death, etc.) should be treated the same. Therefore, if one wishes to favor such a group by according their gain a higher weight than gains accruing to others, then any such (near death etc.) who lose as

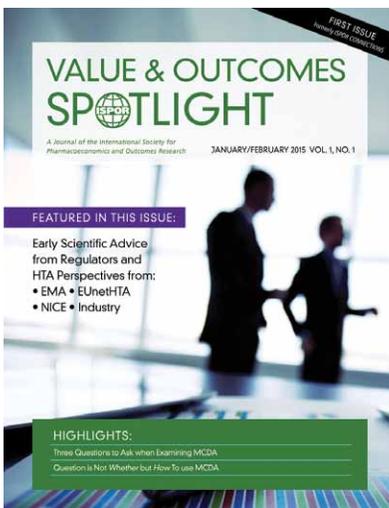
a result of disinvestment in technologies should also receive a higher weight. This will affect the cost-effectiveness of those other procedures and is a complexity that needs to be investigated and allowed for in economic evaluations that depart from the QALY=QALY=QALY principle. Unfortunately, this is an implication that is sometimes neglected (even by NICE).

There are a number of procedural fairness principles that I would want to see in my idealized system of health care investment decision making: transparency, being consultative with all stakeholders (patients, families, informal care givers, the research community, manufacturers (including the manufacturers of competitive products and comparator technologies), clinicians,

politicians, regulators, payers, owners, and politicians, with accountability to the last three of these. Processes should always be participatory in decisions regarding inclusion or exclusion in the insured benefits. Procedures for resolving disagreements about evidence and methods of analysis should be institutionalized. Appeals should be allowed, at least on grounds of failure to observe the foregoing principles and those of natural justice. The ability to commission research the better to inform future decisions would be desirable. These desirable qualities may, however, conflict with one another, so compromises must be made.

My system would be designed to maximize health, and to finance and to distribute it fairly. If you don't like it, is it because you want to maximize something else, or because you have different notions of fairness and equity? If so, what sort of HTA would you need for your alternative system? I rest my case! ■

Additional information:
 To view Dr. Culyer's presentation, please visit the Released Presentations page for the 19th Annual International Meeting at: [http://www.ispor.org/Event Index/2014Montreal](http://www.ispor.org/EventIndex/2014Montreal).



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