

## Cost-benefit analysis and medical ethics

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### Author's abstract

*The issue of assessing priorities is one that has become the subject of much debate<sup>1-2</sup> in the National Health Service particularly in the wake of various documents on priorities from central Government.<sup>3-5</sup> It has become even more so with the prospect of real cuts in expenditure. Economists claim that their science, or perhaps more accurately art can assist in determining not only how best to achieve various ends but also whether and to what extent competing objectives should be pursued. Such choices cannot be made in the absence of some ethical considerations and it is important that health service decision makers (and in particular the medical profession) are aware of the relationship between economics (and especially cost-benefit analysis) and medical ethics.*

### Introduction

To underline the need for greater understanding by health service decision makers of the relationship between cost-benefit analysis and medical ethics it is necessary to look no further than a sample of quotations from an article entitled 'Choosing Priorities' by Muir Gray<sup>6</sup> which was published in this journal. He writes: 'The strength of cost-benefit analysis, or any other concept is a function of its weakest point, which is that it attempts to place a monetary value on human life', which he claims 'is not like the value of sheet steel, ball bearings, or any of the other commodities for which cost-benefit analysis is usually employed. It cannot be expressed in monetary terms.' He continues that 'cost-benefit analysis does not provide the decision maker with incontrovertible criteria' and maintains that the choice between treating different groups of patients 'has to be made on ethical, not on financial grounds'.

Now these quotes contain some interesting misconceptions about the use and usefulness of cost-benefit analysis in health care. In particular it is claimed explicitly that a money price cannot be attached to human life and implicitly that somebody, somewhere, has suggested that cost-benefit analysis can 'provide the decision maker with incontrovertible criteria'. On the latter point it would be most valuable if a source could have been quoted to substantiate this purported claim for cost-benefit analysis in health care; it is extremely doubtful if any health care cost-benefit analyst would make any claims for his tools beyond that of decision-aiding.

Certainly it is difficult to believe that any economist would argue that cost-benefit analysis provides 'incontrovertible criteria'. As three leading exponents of such analyses have written recently:<sup>7</sup> 'there can be no uniquely "proper" way to do cost-benefit analysis . . . The failure of cost-benefit analysis to give a unique answer to the question of whether a scheme is desirable is in no way a criticism of the technique itself. On the contrary, whenever there is dispute as to the *moral* (emphasis added) notions to be used in evaluating a scheme, it is likely that the results of a cost-benefit study will vary according to which of the opposing value systems is adopted.'

### Is life priceless?

There is however *prima facie* a more substantial criticism contained in the charge that life cannot be valued. There is no market for life in the way that there is for commodities such as academic journals or lawnmowers. At first sight it might appear that life insurance is in some way relevant to life valuation but, insofar as it is, it is rather distant. (Thus the sum insured payable on a man's death might be taken at best to be the value *he* perceives his wife and family place on his life.) But the fact that there is no market for life does not mean it has no monetary value. There is no market for clean air – but do we not value clean air? Are we not prepared to pay for a cleaner environment? And in being prepared to pay are we not thereby placing a monetary value on clean air?

Clearly most of us value life. Yet to pose the questions; at what price do you value your life or your spouse's life or your friend's life? or what would you be prepared to pay to avoid death? is almost meaningless and insofar as such questions do convey any meaning they are well nigh impossible to answer.

Does it thereby follow that the value of life is infinite – or that it is impossible to measure satisfactorily? Let us examine these two different questions.

If the value of life were infinite what would our day to day world look like? Certainly it would be very different from what it currently is. The bedroom in which we waken, as well as all the rest of our home, would be safeguarded against *all* possible risk from storms, flood, fire, etc. It is difficult to see how we could convey ourselves to work since there are

clearly risks involved whether we walk, drive, cycle or travel by bus or train. We would certainly not indulge in any sporting activity or indeed any other activity in which any mortality risk was involved – if we valued life infinitely. Indeed it is difficult to believe that such an existence would warrant the title life.

Here in essence lies the key to the issue. In practice we are prepared to trade-off a higher risk of death than is strictly necessary in order to enjoy some of the good things of life. We do what amounts to our own personal ‘cost-benefit analysis’ – not in terms of our lives *per se* but in terms of risk of death. We may not be as well informed about such risks as we might be; nonetheless in deciding how to allocate our income and time we attempt to balance risk against benefits. Sometimes it is money directly that is involved – we buy cheaper but less safe cars; but often other things are entailed – we cross the road by the quicker and more dangerous surface route rather than the longer but safer underpass.

In making such trade-offs they imply first of all a monetary value for risk reduction and secondly a value of life. (Thus if a thousand people are each prepared to pay £100 to reduce their risk of death from 2 in 1000 to 1 in 1000, then the value of the statistical life involved is £100,000).

A simple example will serve to indicate how this type of process can occur in public policy. Sinclair<sup>8</sup> has shown that the decision to introduce legislation to make cabs on tractors compulsory, thereby reducing mortality risk for tractor drivers in roll over accidents and saving an estimated 200 lives, was achieved at a cost of £20 million, implying that tractor drivers’ lives were valued at *at least* £100,000 each. On the other hand Gould<sup>9</sup> indicates that the decision by the Government in 1971 not to introduce child proofing of drug containers to reduce the associated risks for children implied a value of a child’s life of less than £1000.

Just as individuals, faced with finite incomes and finite time, *have* to place a finite value on life (or more accurately risk of death) so the health service faced with finite resources *has* to place a value on life. Every decision on resource allocation in the health sector involves a judgement on whether it is worth paying X to achieve Y. If the decision is yes, then Y is being valued at at least X; if the decision is no then Y is being valued at less than X.

Whether it is possible to measure the value of life in some systematic fashion is more problematic. Certainly various attempts have been made to do so.<sup>10</sup> None is wholly satisfactory as yet. What is almost certainly true however is that the value of life (or reduced risk of death) is likely to vary according to a number of factors *eg* the characteristics of the individual at risk – age, for example; the circumstances of the risk; the level of the risk; and so on. It is therefore unlikely that there is a single uniquely correct value of life but rather a series of

values reflecting the fact that life is not a homogeneous ‘commodity’.

Further, insofar as we as individuals or the health service as a corporate body are concerned with the issue of valuation of life it is seldom in the context of life versus death. (It should be noted here that in the health service context it is at a *resource planning* level that the interest of cost-benefit analysts lies, not individual patient management. Thus the issue is how much dialysis not whether Mrs Jones or Mr Brown should be dialysed.) The relevant question to be posed is: what are we (and others) prepared to pay to reduce the risk of death from some level much less than one to an even lower level? This is the question we face, frequently subconsciously, in going about our everyday business and it is consequently this question which carries most relevance and meaning in life valuation.

However what is possible is to disentangle the implied values of life contained in decisions on resource allocation. By making such implied values explicit we can reveal inconsistencies in such decision making. Thus in the interests of consistency we would want to spend the same amount on saving similar lives. But in addition we can call on both distributive justice and efficiency to justify such an analysis. It would be inequitable to spend £500,000 to save a life in the context of one form of treatment and refuse to spend £5000 in another (assuming similar lives were involved). Clearly such a disparity in implied values would also be inefficient since a shift of resources from the former policy to the latter would result overall in a greater number of lives being saved. It is here that cost-benefit analysis comes into its own since it is the purpose of cost-benefit analysis to assist in achieving a more efficient use of resources.

### **Economics, explicitness and ethics**

It is by compelling decision makers in health care to face up to these issues explicitly that economics and economists can make a contribution to health care planning. Muir Gray<sup>6</sup> suggests that ‘the ethical concept which is most relevant to the choosing of priorities is that of distributive justice’ and that ‘the most important criterion should be the effectiveness of the services which are under consideration.’ Certainly distributive justice (or equity) is important but as indicated equally so is efficiency. Too often the medical profession would wish to ignore questions of efficiency and particularly the resource consequences of their decisions. Sometimes the medic is the mirror image of Wilde’s cynic, he knows the value of everything and the price of nothing. The strength of cost-benefit analysis, not its weakness as Muir Gray would have it, lies in its ability to force consideration of the issue of placing values on health outcomes and thereby to promote the cause of efficiency in health care. It is not a question

of ethics *or* economics. Without a wider use of economics in health care inefficiencies will abound and decisions will be made less explicitly and hence less rationally than is desirable: we will go on spending large sums to save life in one way when similar lives but in greater number could be saved in another way. The price of inefficiency, in-explicitness and irrationality in health care is paid in death and sickness. Is *that* ethical?

### References

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- <sup>8</sup>Sinclair, T C (1969). *New scientist*, 16 October.
- <sup>9</sup>Gould, D (1971). *New scientist*, 22 July.
- <sup>10</sup>Mooney, G H (1977). *The valuation of human life*. Macmillan.