Health economics
A bridge over troubled water

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In a recent issue of the European Journal of Public Health Barendregt and Bonneux1 argue that 'the trouble with health economics', in particular economic evaluations of health care programmes, is that outcomes 'depend to a large extent on arbitrary decisions in study design', while in more theoretical discussions economists would 'display an unseemly rigidity'. Barendregt and Bonneux conclude that although standardisation of methodology is needed, it is not sufficient and health economists will 'have to be more aware of the value judgements underlying their methods, and be prepared to adjust their methods to reflect empirically measured preferences'.

In this reply we want to address the issues raised by Barendregt and Bonneux, placing them in a broader context of economic literature and also correcting some inaccuracies in Barendregt and Bonneux's paper. Specifically, we will address the topics of which costs to include in an economic evaluation, how to value 'life years', discounting of costs and effects and health economics as an aid to policy makers. We will make clear that it is not health economics as such that is troublesome, but the task which health economists have taken on board. Assisting policy makers to make informed choices in health care, necessarily involves making value judgements that may be supported by empirical research, but cannot fully be based on empirical observations. Indeed, it is the task of normative economics (in contrast to descriptive or positive economics) to inform about the relative desirability of possible strategies in health policy.

THE ECONOMIC ROOTS OF ECONOMIC EVALUATION
Economic evaluation may be viewed as applied welfare economics. This important field in the economic discipline is concerned with assessing whether changes in society can be viewed as enhancing total welfare (or as economists would put it: utility). From most textbooks on welfare economics and some on economic evaluation,2 it becomes immediately clear that normative value judgements are necessary in such analysis. Like Boadway and Bruce's state in their textbook on welfare economics: 'In order to make statements about the consequences for economic welfare of an event we must go beyond the study of positive economics, which is concerned with the effects of an event on objectively measurable economic variables, such as price and quantity. That is, the welfare economist wishes to determine the desirability of a particular policy - not in terms of his or her own values, but in terms of some explicitly stated ethical criteria.' (p. 1).

Note that the basis of welfare economics (and thus economic evaluation) lies in the fact that the researcher goes beyond positive economics and has to value different states of the world according to explicit stated criteria. Welfare economists seek to maximise a social welfare function, in which the welfare of all individuals is incorporated. Economics is therefore not 'also about people's preferences' (p. 311), but the preferences of persons, their welfare and by aggregation society's welfare are at the core of economic theory. Barendregt and Bonneux suggest that economists should measure those preferences, ..., and adjust their models and assumptions according to what they find.' That is exactly what has been done. For instance, the QALY-model and its underlying conditions have been empirically tested and challenged and other models have been brought forward, like prospect theory.5 Also, alternative specifications of the utility function in the QALY-model have been put forward. Besides QALY-assessment at the individual level, there has been much attention given to the measurement of societal preferences for QALY-gains in different patient-groups, e.g. younger versus older6 or gains in patients with a poor health state to begin with versus those in better health states.7 Although very helpful and important, it should be noted that empirical measurement cannot replace normative choices. An example here is who's valuation of health states should be used in the analysis: that of the patients, that of the general public, that of the policy-maker etc.9

In the application of welfare economics to the health care setting, the objective of health care is generally defined as maximising health gains (often in terms of QALYs) subject to a health care budget. These health gains are therefore not valued monetarily, like in the traditional application of welfare economics, cost-benefit analysis, amongst other reasons because it is extremely difficult to monetarise health gains. Barendregt and Bonneux's suggestion, that lost life years are valued in cost-of-illness studies through the human capital method or the friction cost method, is a mistake. Neither the human capital method, nor the friction cost method are developed to value lost life years, but merely lost productivity. Health economists do not value life according to one's productive
WHAT TO INCLUDE IN THE ANALYSIS?
Barendregt and Bonneux have difficulties with the incorporation of costs outside the health care sector. They tend to reject the incorporation of indirect costs and other non-health care costs because of two main reasons:
- there's no obvious stopping rule for including other costs;
- no standard methods for imputing values exist, leading to discrepancies in methods used and outcomes (and debate on which method is correct).

Indeed, Barendregt and Bonneux are right to assert that taking a societal perspective in economic evaluations leads to a higher number of cost items with a potential large impact on total cost estimates than in the case where the analysis is restricted to only health care costs. And indeed, changes in society from one particular intervention may be a reaction chain and it is difficult to assess where to stop measuring in that chain. Fortunately, this difficulty has been recognised by health economists, and guidelines prove to be helpful in this area. For instance Gold et al. indicate that only those cost categories need to be taken into account that have a substantial influence (which may even be specified if this is considered useful) on the outcomes of an analysis. Other cost items may be left out of the analysis or their impact may be demonstrated tentatively in a sensitivity analysis. Why bother analysing cost items that have no substantial influence anyway? Researchers should specify which cost-items were included (and which were left out) and provide an explanation, so that policy makers (and peer reviewers) may assess their choices.

Regarding the issue of where to stop, there have been studies attempting to measure the chain of consequences, for instance using a macro-economic model. From these experiences general advice can be given on the relevance of cost categories that are indirect consequences of health care interventions, as is attempted in the friction cost approach. Also, attempts to assess the relevance of, for instance, be operationalised by measuring quality of life of parents or others, like partners) can and should be taken into account as well, as they influence the wellbeing of persons closely related to the patient (be it the parent, caregiver, or 'significant other' level (i.e. parents) perhaps appropriate, is not comparable across interventions and has no valuation dimension. In other words, if we consequently try to decide between funding of this intervention and heart-transplants or even Viagra, no common denominator is found. Although we fully agree that the wellbeing of persons closely related to the patient (be it parents or others, like partners) can and should be taken into account in an economic evaluation of health care interventions, we would conclude that the scope for outcome parameters should be broadened rather than narrowed as Barendregt and Bonneux propose. This could, for instance, be operationalised by measuring quality of life of parents or caregivers. By further developing methods to measure quality of life in 'significant others' and incorporating the results in the analysis (at first as a separate effect-measure, not to be simply added to quality of life changes in patients), policymakers may be better informed about the broader effects of an intervention.

Interestingly, the US Panel on Cost-Effectiveness in Health and Medicine are one of the first to indicate that only those cost categories need to be taken into account that have a substantial influence (which may even be specified if this is considered useful) on the outcomes of an analysis. Other cost items may be left out of the analysis or their impact may be demonstrated tentatively in a sensitivity analysis. Why bother analysing cost items that have no substantial influence anyway? Researchers should specify which cost-items were included (and which were left out) and provide an explanation, so that policy makers (and peer reviewers) may assess their choices.

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Interestingly, the US Panel on Cost-Effectiveness in Health and Medicine are one of the first to indicate that such a broad view on outcomes is appropriate from a societal perspective. Indeed, such a view is more closely related to the aim of maximising social welfare.
DISCOUNTING FUTURE COSTS AND EFFECTS

Barendregt and Bonneux address the topic of discounting costs and effects in economic evaluation ('an obscure technicality'), but unfortunately do not refer to important empirical and theoretical work performed by health economists in this area. Empirical measurement of stated time preference – note that the empirical assessment of preferences is advocated by Barendregt and Bonneux – shows discount rates of up to annually 25% for a 20-year time horizon, 12% for a 50-year time horizon and still an annual discount rate of 8% for a 100-year time horizon. Under those discount rates, that by the way reflect a hyperbolic discount function (the nearby future is discounted stronger and the far future less annually – a common finding when assessing individual discount rates), the preventive medicine programmes that Barendregt and Bonneux try to justify by calling discounting arbitrary and an obscure technicality, would turn out even less cost-effective. Somehow, it seems to be a strong preference of individuals to focus on the here and now. Rather than using stated preferences some authors prefer to use revealed time preference, for instance by considering the returns on riskless government bonds. These discount rates reflect a broader societal time preference, and may thus be considered a basis for the discounting procedure. There are also economists who argue that within the analysis itself we should avoid discounting effects, because, basically, the choice of a social rate of time preference lies with the decision maker. Pigou for instance writes: 'there is wide agreement that the State should protect the interests of the future in some degree against the effects of our irrational discounting and of our preference for ourselves over our descendants' (p. 29–30). Such statements take us back to the social welfare function and questions like: may policymakers overrule individual preferences? If so, a policymaker may choose not to or only marginally discount effects gained through preventive medicine. Moreover, the social welfare function is also assumed to incorporate equity concerns and there exists an increasing amount of literature that suggests that society prefers to spend money on those already in bad health states than to spend health care resources on the now healthy and prevent illness from occurring in 10 years (e.g. through breast cancer screening). On the other hand, the (future) health of babies may be important enough for individuals to value the gains of preventive child health care higher than gains in older persons. Economists try hard to resolve this problem by further refining economic evaluation, incorporating equity concerns, and perhaps equity weighted time preference. We do not want to give a full discussion of the difficulties that health economist face in deciding a rate of time preference, note that health economists face these difficulties because different societal time preferences can be and are found and that no one, health economists nor other scientists, empirically or theoretically can find the appropriate rate. That is why (health) economics is an aid in decision making and not a prescription for decision making.

CONCLUSIONS

Barendregt and Bonneux are right in arguing that health economics is not without problems, but they tend to ridicule the way health economists tackle them. Furthermore, their advice to focus on empirical observation and stick to simple outcome measures is not very helpful, as we hope to have pointed out. We agree that empirically validated preferences should drive health economic models, but already much research effort is made in that direction. Concluding, we agree that making choices in health care is troublesome, but it is exactly health economics that may prove to be a bridge over troubled water.

REFERENCES

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