Techniques for Evaluation

In this chapter two specific and related economic techniques of evaluation—cost-effectiveness analysis and cost-benefit analysis—are discussed. Both are important but perform rather different functions. Many studies in health care which claim to be cost-benefit studies are in practice cost-effectiveness studies and it is therefore necessary to delineate clearly between the two approaches lest the unwary reader be misled.

The techniques have a lengthy history in economics and the literature on them (see, for example, Mishan [45] and Sugden and Williams [65]) has expanded markedly in the past few years. But it is only fairly recently that their application in health care has become at all prevalent. (See, for some examples, Drummond [25].) Even now the number of good studies using these techniques remains relatively small. This chapter outlines the theory and concepts of the approaches. Some applications are presented in chapter 7 to allow the reader to understand better how to apply the techniques to problems which he may face.

Cost-effectiveness analysis

The approach

Cost-effectiveness analysis is essentially concerned with the ‘how’ of policy. It can assist in decisions on the techniques of care delivery. It normally in itself provides no assistance in deciding either whether to pursue a particular policy or how much of a
particular policy to pursue. It is constrained to considerations of how at least cost to meet a particular objective; or, given a fixed budget to meet a particular objective, how best to deploy this budget.

To use cost–effectiveness analysis it is necessary to be able first to answer the questions: What is the objective? What are the possible options? What are the effects of each of the possible options? What are the costs of each of the possible options?

The objective could take various forms. For example, in screening for breast cancer, it might be considered relevant to aim for one or more of the following:

(1) the lowest screening cost per woman screened;
(2) the lowest screening cost per positive case detected;
(3) the lowest cost, including treatment and screening costs, per positive case detected;
(4) the lowest cost, including treatment and screening costs, per true positive case detected;
(5) the lowest cost, including treatment and screening costs, per death averted;
(6) the lowest cost, including treatment and screening costs, per year of life extended; or
(7) the lowest cost, including treatment and screening costs and allowing for savings in treatment costs for cases which would have presented symptomatically, per year of life extended.

This list could be extended and made even more complex. However, it serves to indicate that the specification of the objective in some detail is important in cost–effectiveness analysis. To have a simple objective, as in (1) above, might result in a very different policy from one which pursued more complicated objectives such as (6) or (7). In some instances it may be that the final definition of the objective will be dependent on the cost–effectiveness study itself. For example, different screening techniques may result in different rates of false positives which, in turn, could affect the objectives. Thus it may be that a final choice of objectives can only be made if objectives are initially set in terms of both true and total positive cases detected, and cost–effectiveness studies are mounted on the basis of each of these objectives;