19.3: Framing the analysis

For all types of economic analyses, the perspective, range of inputs and outcomes, and the time frame of all components of the interventions and of their effects should be comparable and explicitly stated. The focus of this chapter is on CEA conducted in the context of randomized trials. For purposes of health intervention assessment, we generally take the perspective of society as a whole and attempt a comprehensive consideration of the range of inputs to be costed and of outcomes to be considered that result from the intervention. The time frame will be the period of time over which these inputs and outcomes will be assessed.

3.1 Perspective

Quantification of the economic consequences of disease and the full costs of an intervention can be viewed from different perspectives, for example, an individual, family (household), community, health system, or government (local, district, national). The societal viewpoint examines the economy as a whole. Though, for some purposes, the perspective of the individual and family or of the health system may be appropriate, taking this narrower view can be misleading and lead to erroneous conclusions about the best use of resources from a societal perspective. For example, the cost to the health service of providing access to treatment at a clinic would be much less than the cost of taking the treatment to patients at home. However, the reverse would be the situation for patients. A societal perspective would take both sets of costs into account.

3.2 Range of inputs and outcomes

The economic consequences (costs) of disease are directly related to the type and extent of disability and, for fatal diseases, to the age at death, with loss of expected healthy life that results from the disease. Ideally, all consequences of disease that the intervention addresses should be tracked (and valued), including loss of work, education, and leisure
of the patient, family, and friends, emotional stress, fear, and anxiety. To a large extent, these consequences may be subsumed in measures of utility lost from disease (see Section 2.2).

### 3.3 Time frame

Generally, time factors involved in assessing the costs of interventions are fairly straightforward, whereas the time factors for assessing the outcomes of an intervention may be much more problematic. For example, the costs of adding hepatitis B vaccine to an immunization programme are immediately expended, but the most important consequences of hepatitis B infection include chronic liver disease and liver cancer that occur many years after the initial infection. Adequate assessment of the impact of a hepatitis B vaccine will require continuing observations of the trial populations for very long periods. Usually, the longer term is modelled, rather than measured. Furthermore, since these gains in healthy life will occur in the distant future, some would argue that their value should be discounted in some way. The key issue related to the time frame concerns the differential timing of intervention costs and intervention effects, and this is particularly problematic if these differ between interventions under consideration (for example, comparing measles vaccination with hepatitis B vaccination). Generally, there is a longer gap between a preventive intervention and realization of its effects than there is with treatment interventions. Whatever the nature of differential timing, discounting should be considered to equate future costs or effects to present costs or effects. It is generally accepted that discounting should be applied to costs, but discussions continue concerning whether to discount future effects and, if so, what rate of discounting to apply (Mathers et al., 2006).

Joint costs are those resources that are shared with other interventions or programmes. Costs frequently shared include buildings and their overhead costs such as for maintenance, electricity, and water. Other types of joint costs might include personnel or equipment such as those involved in diagnostic tests that typically are shared among several interventions. In practice, joint costs are estimated by applying some allocation rule related to the use of the resource. For example, personnel costs can be allocated to the intervention on the basis of the proportion of time devoted to it, vehicle costs according to the proportion of the total distance travelled, and building costs by the proportion of the space used. The notion of joint costs is straightforward, but exactly how best to do that is often problematic. Creese and Parker (1994) discuss the allocation of joint costs.