



## Cost- effectiveness analysis (CEA)

The typical logical setting for CEA is that in which a decision to intervene on a particular problem has already been taken and CEA is carried out only in order to identify the most efficient way of achieving objective X. CEA is used to assess *technical* or "X" *efficiency*.

CEA, born in the 1960s, has quickly supplanted CBA in popularity up to the point where the term "cost-effectiveness analysis" is often used as synonymous with economic evaluation. This is a misleading use of economic terminology which causes confusion, especially in those who are not conversant with the full range of economic evaluation methodology. CEA should be regarded as a specific type of study design used to answer questions such as "what is the most efficient input to achieve a natural unit of outcome?" For example, to prevent one case of hepatitis A at least cost should we intervene with health education, good sanitation,  $\gamma$ -globulin, or vaccine? This would be answered in a CEA by comparing costs of these different interventions per avoided case (or per avoided death).

CEA includes costs both to health care providers and users which are used in cases when it is necessary to calculate a wider impact of the intervention being assessed. For example, any mass screening campaign involves costs accruing to the families of the person or persons being screened (for example, time lost by mothers who take their children to the optician). Additionally, false tests results generate anxiety and sometimes even out-of-pocket expenses for counselling to reassure and support the screened person.

Accounting for these costs as "side-effects" and social costs is necessary, for example, when comparing different screening methods with different attendance requirements or false-positive rates.

In CEA the relationship between inputs and consequences is expressed in terms of costs per natural unit such as case(s) avoided, hospital admission avoided, dismissal from work or sickness absence avoided, life years gained, death avoided or cases identified (as in the case of a screening procedure). Obviously the expression of difference in impact on health in a CEA comparison between two forms of care is limited by the choice of the key health indicator used in the analysis. Where is a clear trade-off between different important outcomes (such as in the case of fewer deaths but increased numbers of disabled survivors after neonatal intensive care for very preterm babies) CUA or CBA should be preferred.