Healthcare Costs

Stefano Neri and Annalisa Ornaghi

Definition

The costs for individuals, organizations, or a society directly or indirectly incurred by the provision of healthcare goods and services, aimed at maintaining or recovering the health of a person or of a population.

Description

Since the end of the 1970s, rising costs and budgetary limits on healthcare have not only prompted a search for greater efficiency in resource utilization, but have also increasingly promoted the adoption of comprehensive approaches to healthcare costs, considering costs for individuals, organizations and society as a whole, with a frequent attention also to the effects on social inequalities.

In this context, economists use the concept of opportunity costs, which relies on the idea that resources are scarce relative to needs. Opportunity costs of a healthcare intervention are represented by the value of resources used in this intervention, which prevent their use in other ways. This kind of costs is best measured by formal methods, such as cost-effectiveness or cost-benefit analysis, which compare the benefits and costs of a healthcare intervention in order to determine whether it is worth doing (Sloan *1995*). In the former, benefits are measured by using some standards of outcome or effectiveness, such as mortality rates, life years saved, and quality-adjusted life years (QALYs) gained, indicating benefits that could have been achieved if the money spent on the intervention had been spent on the next best alternative healthcare intervention or program (Palmer *1999*). In the latter, these benefits are converted into a monetary value.

Healthcare costs can be distinguished in different sets of categories, according to the chosen criteria: fixed/variable costs (depending on whether costs do not vary or vary according to the volume of produced output) and average and marginal costs (respectively, the average cost needed to produce an output unit and the cost added by increasing of one unit the production of goods or the provision of a service). The relevance of fixed costs depends on the kind of healthcare service, usually much higher in hospital care, especially in the case of inpatients, than in ambulatory and home care. According to microeconomic theory, a healthcare organization needs to compare marginal costs with marginal revenues (i.e., the additional revenues generated by increasing by one unit the production of a good or the provision of a service), in order to decide the volume of services provided. If this organization is oriented to profit maximization, the optimal quantity of provision occurs where the marginal costs equal marginal revenues. From a societal perspective, marginal costs of an intervention or of the provision of any health service need to be compared with its marginal benefits for patients.
Another important way to classify healthcare costs is obtained by distinguishing them into three types (Drummond et al. *2015*):

1.

Direct costs, which include the costs for the resources (e.g., personnel, medicines, equipment, building, power) consumed to provide particular healthcare goods or services.

2. Indirect costs, which are the total sum of productivity costs, related to lost productivity incurred by patients or caregivers leaving or reducing work to provide care for the patients.
3. Intangible costs, indicating features like pain, anxiety, or grief, which cannot be directly quantified in monetary terms.

Direct costs comprise medical costs (which are the costs for the provision of preventive activities, diagnostic procedures, and curative and rehabilitation therapies) and all non-medical costs (e.g., transportation to hospital). Direct costs (public and private) are related to the expenditure necessary to cover them. They are usually considered in the perspective of a "third payer," namely a funding organization (e.g., a national health service, a sickness fund, a private health insurance company). Indirect costs comprise the costs incurred from the cessation or reduction of work productivity as a consequence of the morbidity and mortality associated with a given disease. These costs may be evaluated from either individual, employer, or societal perspectives (Boccuzzi *2003*).

In the theoretical debate, there is no overall consensus both on whether productivity costs should be taken into account and on the methods to calculate them, with relevant differences existing, on both issues, in the choices made by health technology assessment organizations and healthcare institutions, country by country (Drummond et al. *2015*). Productivity evaluation seems to be necessary in case of adoption of a societal perspective, in order to reflect full societal costs (including costs of unpaid work; see Krol and Brouwer *2015*) or savings of an intervention. However, these costs are often neglected, either because they are not recognized as relevant or because they raise such relevant problems in their calculation so as to limit the reliability of obtained measures and estimations. Even studies deliberately supporting the idea that productivity costs affect cost-effectiveness outcomes agree that their amount significantly depends on the methodology used to calculate them (Krol et al. *2011*).

Three different approaches are used to calculate indirect costs: the human capital approach, which is the traditional method; the friction method, which is more difficult to apply because it requires more data and more complex calculations; and the multiplier one (Lensberg et al. *2013*; Koopmanschap and Rutten *1996*). The most appropriate method depends on the disease, proposed outcomes and time horizon, being able to exclude double counting and consider equity issues (Lensberg et al. *2013*).

Three stages can be usefully distinguished in a costing study: identification, measurement and valuation (Raftery *2000*). Identification consists of listing the likely resource effects of the healthcare intervention as comprehensively as possible, so that it is possible to decide which effects might reasonably be excluded. Measurement refers to the measuring of the resource changes included in the study, such as the amount of inputs (e.g., drug, labor) and outputs (e.g., bed days, prescriptions), as well as patients' or caregivers' time. The last stage is the valuation of these resource effects.

Two strategies can be usefully distinguished in measuring and valuation: micro-costing and gross or top-down costing. Micro-costing is based on a bottom-up collection of data which allows a detailed analysis of the changes in resource use due to a particular intervention or program. It revealed to be particularly appropriate to estimate the costs of new interventions, for interventions showing a large variability across providers, and also for estimating the costs to the health system and to society (Xu et al. *2014*). Top-down costing allocates a total budget of a service or a providing organization to the single procedure or unit level. The top-down approach is more useful in managerial processes of cost accounting, where the focus is on spending budget decisions based on financial data (IHE *2015*).

The two strategies are often combined, using micro-costing for the direct costs of the intervention and gross costing for other costs (Raftery *2000*).

Cross-References

- Health
- Healthcare
- Healthcare Expenditure as a Percentage of the GDP
- Healthcare Quality (or Quality of Care)
- Public Health

References

Boccuzzi, S. J. (2003). Indirect health care costs. In W. S. Weintraub (Ed.), *Cardiovascular health care economics. Contemporary cardiology* (pp. 66–79). Totowa: Humana Press.

Drummond, M. F., Sculpher, M. J., Claxton, K., Stoddart, G. L., & Torrance, G. W. (2015). *Methods for the economic evaluation of health care programmes* (4th ed.). Oxford: Oxford University Press.

IHE – Institute of Health Economics. (2015). *The state of the art in costing methods*. Alberta: IHE.

Koopmanschap, M. A., & Rutten, F. H. (1996). A practical guide for calculating indirect costs of disease. *PharmacoEconomics, 10*, 460–466.
CrossRef

Krol, M., & Brouwer, W. (2015). Unpaid work in health economic evaluations. *Social Science & Medicine, 144*, 127–137.
CrossRef

Krol, M., Papenburg, J., Koopmanschap, M., & Brouwer, W. (2011). Do productivity costs matter? The impact of including productivity costs on the incremental costs of interventions targeted at depressive disorders. *PharmacoEconomics, 29*, 601–619.
CrossRef

Lensberg, B. R., Drummond, M. F., Danchenko, N., Despiégel, N., & Clément, F. (2013). Challenges in measuring and valuing productivity costs, and their relevance in mood disorders. *Clinico Economics and Outcome Research, 5*, 565–573.
CrossRef

Palmer, S. (1999). Opportunity cost. *British Medical Journal, 318*, 1551–1552.
CrossRef

Raftery, J. (2000). Costing in economic evaluation. *British Medical Journal, 320*, 1597.
CrossRef

Sloan, F. A. (1995). *Valuing health care*. Cambridge: Cambridge University Press.
CrossRef

Xu, X., Grossetta Nardini, H., & Prah Ruger, J. (2014). Micro-costing studies in the health and medical literature: Protocol for a systematic review. *Systematic Reviews, 3*, 47.
CrossRef