Effective interventions unit

Evaluation guide 5: Designing an economic evaluation

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WHAT IS THE PURPOSE OF THIS GUIDE?: This is the fifth evaluation guide in the EIU evaluation series. It outlines what economic evaluation is and when it might be useful. We briefly outline what this approach involves, illustrated with examples from the substance misuse field.

WHO SHOULD READ IT?: Anyone involved in the planning, development and evaluation of services for drug users.

WHY IS ECONOMIC EVALUATION IMPORTANT?: Only limited resources are available for tackling substance misuse. It is important that these resources are used to maximum benefit (i.e., used efficiently). Economic evaluation provides guidance on how best to use resources.

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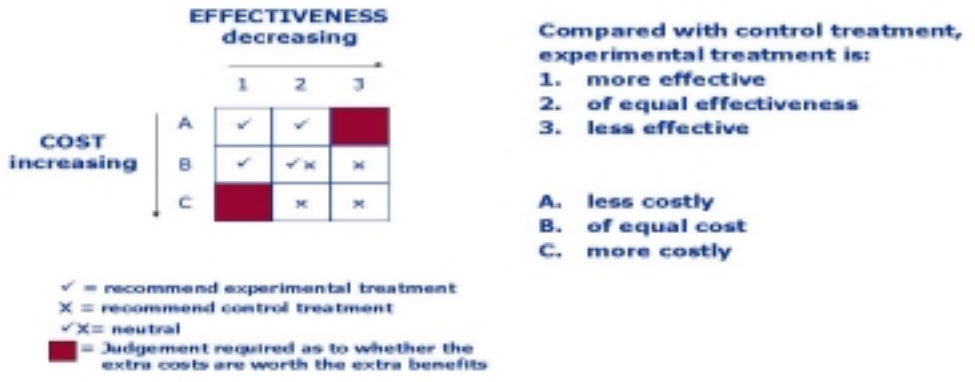
What is economic evaluation?

Economic evaluation should always involve the quantitative comparison of two or more interventions in terms of their cost (the resources that they use) and benefits. Normally, this means comparing a new service with the existing level of service provision. The way in which information on costs and benefits can be brought together to provide information to decision-makers about how to allocate the limited resources available is illustrated below.



As with other evaluations, economic evaluations must have:

- clear aims and objectives
- A strong underlying rationale
- A study design that can adequately address the questions asked

For further information on these aspects see **EIU Evaluation Guide 2** and **EIU Evaluation Guide 3** for guidance on planning and designing an evaluation respectively (http://www.isdscotland.org/goodpractice/EIU_evaluationg2.pdf & http://www.isdscotland.org/goodpractice/EIU_evaluationg3.pdf)

What are benefits and costs?

In economic evaluation outcomes are divided into those that involve resource use (costs) and those that do not (benefits).

Example: Different costs and benefits measured as part of an evaluation of the introduction of a needle outreach service	
Costs	Staff time required to run the service Needles and other equipment required to use service Changes in use of health services (primary and secondary care)
Benefits	Increase in clients physical and mental health Non health benefits to clients (improved knowledge about disease transmission) Reduction in anxiety among clients family/friends

Which costs and benefits are important?

Costs and benefits can be considered from lots of different viewpoints (service providers, clients, society in general).

Example: some of the potential cost and benefits that may be considered in an evaluation of the expansion of a methadone detoxification programme	
Direct costs and benefits	Costs of increasing the level of service provision Cost to clients of participating in the programme Benefits to clients who successfully complete the programme
Wider costs and benefits	Reductions in costs of detecting and dealing with drug related crime Fewer people suffering the distress of being the victims of crime

Understanding who bears the cost and who reaps the benefits can provide information about more than just efficiency. It can also provide information about whether:

- The "right" client group benefits. For example, do clients from the most socially disadvantaged backgrounds, who lack the necessary social support networks, benefit as much as those from more advantaged backgrounds
- Costs to clients or their families/friends may limit uptake of an effective service
- Resource constraints in other sectors of the economy may limit the adoption of an otherwise worthwhile service.

Measuring costs

Allocating resources to one option incurs the cost that some benefit will be lost because resources were not allocated to another option. In theory, cost in economics is equal to the greatest amount of benefits that could have been obtained had the limited resources been used in another desirable way. In practice, the cost of the resources used can be approximated by

the purchase or replacement price of the resource. The type of resources that are of interest are staff time (labour), the use of reusable equipment (reusables), equipment that can be used once only (consumables) and overheads (heat, power, light, rates). The prices of the resources may be based on market prices (e.g. salaries) or imputed for those resources that do not have a market price. For example, using average national salaries for time devoted by a voluntary worker).

Example: Simple calculation of weekly cost for staff, consumables, and reusable				
Labour	Total time of each staff member per week	x	Hourly wage rate plus national insurance and employer pension contributions	= Total staff cost per week
Consumables	Number of each consumable item used per week	x	Purchase cost for each consumable item	= Total consumables cost per week
Reusables (that last more than a year)	Purchase or replacement cost of the item	/ /	Number of years the item lasts for, then Weeks in a year (52)	= Total reusable cost per week
Reusables (that last less than a year)	Purchase cost of the item	/	Number of weeks the item lasts	= Total reusable cost per week
Weekly cost per client is equal to the total weekly cost divided by number of clients				

Measures of benefit

Benefits are those outcomes of adopting a given course of action that do not involve the use of resources. They can relate to changes in clients health and well being, and can also relate to the psychological and physical benefits of derived by people, other than the client, who are effected by substance misuse (families/friends of the client, victims of crime, etc).

Example: Potential methods of measuring the benefits from reorganising a needle exchange programme		
Measure	Use	Limitations
Single outcome e.g. needles exchanged	Where a single measure reflects all benefits of interest	– Simple – Can only compare interventions with same goal (e.g. different ways of providing a needle exchange programme) – May not adequately capture all benefits
Multiple outcomes measured individually (needles exchanged; infections; satisfaction of clients, family/friends and general public).	When several different measures of outcome are required to reflect benefits	– Simple – Allows trade off between outcomes to be considered – Can only compare interventions with same goal – Can be difficult to interpret if many different outcomes are used
Multiple outcomes included in a single unified measure	As above and when it is necessary to consider the net benefit across several sectors of society e.g. health, social services, and law and order.	– Trade off between outcomes directly incorporated into valuation – Can compare interventions with different goals e.g. methadone detoxification service to changes in law and order – Requires specialist advice

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Sensitivity analysis

In any evaluation allowance must be made for imprecision and uncertainty in estimates of outcomes. It is important to explore the effect of variations in estimates of cost and benefits on the conclusions of the evaluation this has. Sensitivity analysis involves the changing the value estimated for an outcome to reflect plausible ranges of imprecision or uncertainty and so allowing the exploration of the effect on conclusions.

Example: Types of uncertainty that would be candidates for sensitivity analysis on costs and/or benefits
The drop out rate from a methadone detoxification process may vary between X% and XX%.
The number of needles exchanged per session varies between ?? and ?? with an average of ??.
The cost of inpatient treatment for drug misuse may vary between £75 and £205 per day.

When to consider performing an economic evaluation:

Conducting an economic evaluation maybe time consuming and require a great deal of effort. Sometimes very simple quantification of the pros and cons of changing the way services are provided is sufficient. However, it is important to consider whether the information economic evaluation can provide will be sufficiently useful to warrant the time and expense of its conduct.

In general an economic evaluation would be worthwhile if all three of the criteria raised in the three bullet points below are fulfilled.

- If interventions differ greatly in cost
- If the collection of reliable economic data is possible at reasonable cost
- If the study design is sufficiently good enough to provide unbiased answers

Further resources

EIU Evaluation Guide 1, 2, 3 and **4** resource list
Cochrane Economic Methods Group. http://www.uea.ac.uk/hpp/healecon/cochrane.html
Drummond M, O'Brien B, Stoddart G and Torrance G. **Methods for the economic evaluation of health care programmes**