

Costs and Effects → Cost-Effectiveness

Effectiveness matrices can be used to assess effects against costs. These aggregate both the baseline behavioural data and the post-intervention data for the intended effects of the programme and can be recorded in Table 2. This example is for a programme covering hand-washing, latrine use and safe drinking water use.

Table 2: Example effectiveness matrix

Behaviour	Hand-washing after defecation			
	rinsing hands	wash with <1cup water	wash with water & soap/ash	wash with water and soap/ash, rub hands together at least 3 times
No. of people at time of baseline				
No. of people after intervention				
Behaviour	Use of an hygienic latrine			
	never	<50% of times	>50% of times	Always
No. of people at time of baseline				
No. of people after intervention				
Behaviour	Use of safe water for drinking			
	Uncovered pot	Covered pot	Covered pot and ladle	
No. of people at time of baseline				
No. of people after intervention				

Having calculated the intervention costs, it is possible to cost the effects and therefore get some idea of cost-effectiveness. Hygiene promotion programmes have multiple effects, so figures for cost-effectiveness of single effects cannot be calculated. Input costs can be known per household for a single behaviour, but dividing costs by the number of additional persons performing a certain behaviour is not possible.

Conclusions

The costs associated with any programme are relatively easy to estimate and can be recorded as a single figure expressed in the local currency, with a breakdown of this shown on a spreadsheet.

Effectiveness, however, cannot be sensibly aggregated into a single number, because the effects in question are due to various changes in both individual hygiene behaviour and social patterns. The effectiveness matrix shows the programme outcomes but cannot translate into a single figure.

Cost-effectiveness is assessed by relating programme costs to the matrix of behaviour change brought about by the intervention, also taking into account inputs and outputs. Comparisons can be made between interventions in terms of costs but there is no numerical value or cost-effectiveness ratio to judge the value of different programmes. CEAs provide an approach to setting out costs and outcomes. This is useful in the design, financing, implementation and evaluation of such programmes.

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BRIEFING NOTE 24

Guidelines for assessing cost-effectiveness of hygiene promotion



This briefing note presents a summary guide to Cost-Effectiveness Analysis methods for use at project and programme level. For more comprehensive information, including detail on methodological issues, please see the full report by Bolt and Merrett (2006), referenced below.

Key references

- Waterkeyn, J. (2003) *Cost-effective Health Promotion: Community Health Clubs*, Loughborough: 29th WEDC Conference.
- Christoffers, T., van Wijk, C. & Njuguna, V. (2004) *The Value of Hygiene Promotion: Cost-Effective Analysis of Hygiene Promotion Interventions*, London/Delft: WELL/IRC International Water and Sanitation Centre.
- Bolt, E. & Cairncross, S. (2004) *Sustainability of Hygiene Behaviour and the Effectiveness of Change Interventions: Lessons Learned on Research Methodologies and Research Implementation from a Multi-country Research Study*, IRC Booklet 1, Delft: IRC International Water and Sanitation Centre.
- Shordt, K. & Cairncross, S. (2004) *Sustainability of Hygiene Behaviour and the Effectiveness of Change Interventions: Findings of a Multi-Country Research Study and Implications for Water and Sanitation Programmes*, IRC Booklet 2, Delft: IRC International Water and Sanitation Centre.

This Briefing Note is based on the full report by Eveline Bolt and Stephen Merrett (2006) available at www.Lboro.ac.uk/well

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Effective hygiene promotion can bring about changes in behaviour that, in turn, can reduce the incidence of diarrhoea and other water and sanitation related diseases by as much as 65% and associated mortality rates by up to 26%. It has been suggested that hygiene promotion is more cost-effective than other water and sanitation interventions. Cost-Effectiveness Analysis (CEA) is used to assess value for money and to help secure funding from national governments and donors.

This briefing note develops the ideas set out in Briefing Note 14 on 'Making hygiene promotion cost-effective', and presents much needed simple guidelines on CEA for use at project and programme level. For more detailed information, readers should see the full report (Bolt and Merrett, 2006).

Headline facts

- It is suggested that hygiene promotion interventions are more cost-effective than other water and sanitation interventions, although this has rarely been assessed.
- CEA compares planned effects, with and without an intervention, taking into account the local situation, the intervention process and the institutional setting.
- It is relatively straightforward to assign capital and recurrent costs to hygiene interventions in a water, sanitation and hygiene programme.
- Financial benefits of behaviour change (such as reduced working days lost due to sickness) are hard to include in CEAs, as there may be other factors contributing to these changes. They are therefore not dealt with here.
- Effects and therefore cost-effectiveness are costed by aggregating baseline and post-intervention data and comparing these. However, effectiveness cannot be numerically quantified.



Using Hygiene Promotion CEAs

Analysing cost-effectiveness allows programme managers, governments, donors and researchers to compare programme costs against programme effects. However, a comparison of the cost-effectiveness of programmes using different hygiene promotion approaches is only possible if other variables and external factors are the same.

CEA compares the planned effects relating to a situation, both with and without the intervention. For this, it is important to have access to baseline data and clear programme objectives. Where baseline data is unavailable, planned effects may be assessed through longitudinal studies. Alternatively, behaviour differences can be compared between the programme community and control communities where the programme has not been active.

To have a better understanding of what to describe and measure when assessing cost-effectiveness, Christoffers et al (2004) include a framework, which combines various elements related to measuring the cost-effectiveness of hygiene promotion. In this, hygiene promotion inputs are turned into processes, processes lead to outputs and effectiveness, and effectiveness leads to impacts. Costs are set against effectiveness to determine cost-effectiveness.

This model is simplified here and for analysing cost effectiveness we deal with inputs - in terms of the local situation, the intervention process and the institutional setting; financial costs; and outputs and effectiveness.



The Inputs

Insight into inputs is crucial for assessing cost-effectiveness. For example, where health norms are similar, a hygiene promotion programme in an area of abundant water will result in more hand-washing against less effort (and hence less costs), than a programme in a water-scarce area.

The local situation

This is an assessment of factors that determine objectives and direct the programme: socio-economic issues, the physical environment, available water and sanitation facilities, sanitation and hygiene-related knowledge, health status, and the level of previous developmental interventions.

When drawing up data collection tools, make sure that:

- definitions are consistent e.g. of hygiene behaviour or a latrine;
- variables refer only to what has been promoted by the intervention; and
- baseline data are related to the changes the intervention intends to bring about.

The intervention process

The hygiene promotion approach and its intended effects determine the activities and inputs of the intervention process, for example, participatory approaches may target social as well as hygiene change.

What to include	Assessment methods
Intervention approach	
Objectives/intended outputs	Programme documentation
Duration and staff input	Staff/community consultation
Communication channels and success	
Baseline data availability and use	Programme documentation Staff interviews
Staff expertise and roles	
Intervention activities e.g.: <ul style="list-style-type: none"> ■ household visits ■ mass campaign ■ training 	Programme documentation Staff/community consultation Community focus groups

The institutional setting

The institutional setting has an impact on the effectiveness of the intervention, for example, water supply, sanitation and hygiene promotion activities can only be integrated if the institutional setting allows it.

Information on the following elements can be obtained through consultation of programme documents and interviews with staff and community leaders:

Elements of the institutional setting to include
Type of organization responsible for the intervention
Programme design and by whom
Specific targets and policies
Staff labour conditions impacting on commitment
Existence of monitoring framework
Possibility of pilot testing revised interventions
Partnerships with other public or private parties
Intervention is stand-alone or part of integrated programme?

Table 1: Hygiene interventions: Hygiene promotion and sanitation. Financial costs of programme (in local currency)

Costs paid by implementing agency:	Capital costs	Recurrent costs	Depreciation	Annualized total costs (recurrent plus depreciation)
1. Land purchase, if needed	□		□	□
2. Construction, if needed	□		□	□
3. Vehicle purchase	□		□	□
4. Equipment valued at more than 100 euros	□		□	□
5. Personnel costs		□		□
6. Training costs of staff and volunteers		□		□
7. Office equipment and materials		□		□
8. Development of hygiene education materials		□		□
9. Fuel costs		□		□
10. Vehicle and equipment maintenance		□		□
11. Transport and meetings costs		□		□
12. Payments to consultants for advice and evaluation		□		□
13. Total costs paid by implementing agency	□	□	□	□
Costs paid by families:				
14. Soap		□		□
15. Soap dishes		□		□
16. Water jars and dippers		□		□
17. Cleaning brush and waterpot in latrine		□		□
18. Water		□		□
19. Total costs paid by families	□	□	□	□

Hygiene Promotion Costs

The costing tool

Table 1 is an example of a costing tool. Capital costs are expenditures on assets with a year or more of life, sometimes raised through loans or grants. Recurrent costs are those regular costs required to keep the programme running. By calculating depreciation, we identify an annual cost for a piece of equipment that may last ten years and that was paid for as a one-off purchase. By adding depreciation to recurrent costs in a given year, we have the cost component of the cost-effectiveness measure. Costs are recorded for the implementing agency and for the families involved.

The subsidy question

Hygiene promotion interventions often receive a level of subsidy from local or regional government. Records should detail the year of subsidy; the source; the cost category using Table 1 (1-19); and the sum allocated. A cost analysis should be followed by a subsidy analysis.

Methods of collecting cost data

Once cost estimates are arrived at, the proportion attributed to the intervention can be determined, in discussion with the accounting section of the organizations involved. An additional cross check is to discuss actual events with programme personnel e.g. how many times were vehicles used, length of travel and fuel prices. Costs incurred by families can be assessed through household interviews.

Describing outputs and effects

Outputs are the direct results of an intervention e.g. the number of people trained, the number of hygiene promotion sessions and the materials produced.

Effects refer to changes in hygiene behaviour, at both household and community level, such as latrine use and hand-washing after defecation and before preparing food. Effects can also be on social behaviour e.g. in the roles of the sexes or the status of trained health volunteers.

Intended effects (e.g. to increase the level of hand-washing) should be distinguished from **unintended effects** (which are not planned). These can be negative as well as positive, such as the burden of extra latrine cleaning falling onto women.

Impacts of Behaviour Change

Behaviour change impacts on health improvement, people's welfare, societal social norms and values and state expenditure on health. Hand-washing with soap can reduce the risk of diarrhoea by more than 40%, bringing with it further 'resource savings' for families not having to pay for medicine or health clinic visits and not losing income from sick family members.

However, such impact of behavioural change is not taken into account in the CEA method described here, due to the many confounding factors that exist. For example, the risk of diarrhoea is affected by nutrition levels, and market opportunities also affect earning power.

Cost-effectiveness of Community Health Clubs (CHCs)

CHCs are used as a vehicle for rural health promotion in Makoni District, Zimbabwe, supported by the A.H.E.A.D. (Applied Health Education and Development) NGO. After two years of implementation, a household survey was undertaken of observable indicators of good practice that acted as proxy indicators of improved family health, comparing CHC and non-CHC areas.

The project cost for 2000 was US\$120,000, with 20% spent on health promotion. In 2001, costs per beneficiary dropped from 0.91c to 0.35c with costs per trainer of US\$3,144 for two years.

Results showed that indicators of good hygiene were more evident in the health club group than in the control group. It is concluded that, based on measurable impact, health clubs are highly effective and at an estimated 35c per beneficiary, the A.H.E.A.D. method of health promotion is therefore also deemed to be cost-effective. Source: Waterkeyn (2003).