

Economic appraisal of public health interventions

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Introduction

The economic appraisal of public health interventions is both underdeveloped and intrinsically difficult. This paper considers some of the problems, and points towards potential solutions.

Problems to be solved

The problems of applying economic evaluation to public health interventions are considerable. The most important are outlined here.

Determinants of health and of inequalities in health

Over a long period, there has been an overall improvement in the aggregate health of the population. However, at the heart of public health is a conundrum – as the overall health of the population has improved, in the most recent past, inequalities in health have worsened. Despite a vast literature on the determinants of health, specific analysis of the determinants of inequalities in health is underdeveloped. And there is relatively little evidence of what interventions will work to reduce inequalities in health. Consequently the baseline for analysis of effectiveness is limited. The most comprehensive analysis is in the HDA's Evidence Briefings (Kelly, 2004; www.hda-online.org.uk/evidence).

Relationship between upstream and downstream interventions

Downstream interventions aim to change adverse health behaviours; upstream interventions target the circumstances that produce adverse health behaviours. The best evidence that exists tends to be about downstream rather than upstream interventions. While these interventions are important in themselves, from an evaluation point of view this presents a second important difficulty. For example, an approach that relies on specific downstream interventions, such as individual counselling to assist smoking cessation, will be mediated by broader social structural factors such as poverty, unemployment and social conditions. The analytical and evaluation problem is that upstream interventions to improve the circumstances in which people live may not be a **sufficient** condition to produce health improvements, but may be a **necessary** precondition for other downstream interventions to be effective. The importance of the socio-economic context has implications for how interventions are designed and evaluated. Evaluating single initiatives may fail to capture effects that rely on multiple interventions.

Mediating role of behaviour change

To be effective – and therefore cost effective – public health interventions (unlike many clinical interventions) often require a change in individual or population behaviour

patterns to ensure uptake of the intervention. The behaviour change is an intermediate or process event, necessary to achieve the desired final outcome. The behaviour change itself must be modelled into the economic analysis, but the modelling needs to account for the behaviour as more than the operation of a simple rational economic calculus in the mind of the individual. The traditional approach to economic evaluation has been to synthesise costs and final outcomes, such as life years gained, so intermediate process variables have often been ignored or dismissed as irrelevant. Yet understanding this behavioural process is crucial to determining why public health and health promotion programmes and interventions work (or fail), and at what cost. It can help in understanding the barriers to individual change, and how different approaches might be used to overcome such barriers. This will require some awareness of different socio-economic factors including income, employment, crime rates and educational attainment – especially important if the objective is not just to improve population health, but also to reduce inequalities in health, where the impact on specific subgroups is also required.

Separating cause and effect

Unlike drug-based or technological interventions, public health initiatives often use multi-faceted approaches, making it more difficult to identify which elements of a programme may lead to change. Some public health interventions occur outside the health domain, in transport, education, local authorities or the workplace. Even where interventions are well defined and tightly circumscribed within an obvious health domain, as in the delivery of smoking cessation via nicotine replacement therapy (NRT) in primary care, attributing cause to this intervention is difficult. Secular trends, and other anti-smoking activities to which the population is exposed, will also have effects, and interactive or synergistic effects between interventions need to be considered.

Study designs to help solve the problem of cause and effect may bring problems of their own. Randomised controlled trials, which are intended to eliminate bias, are often the preferred solution. However, it is important that these are pragmatic trials, carried out in real-world settings, in order to test effectiveness and not just efficacy. This may have implications for the scale and feasibility of the studies required. While the randomised controlled trial is the best way of eliminating bias and linking cause and effect, it is not without limitations. Other study designs have the potential to provide good quality evidence if they are rigorous in dealing with sources of bias. It should be noted that, in terms of reducing health inequalities, the potential sources of bias need to be identified and studied. The mediating or confounding factors at the point of implementation in real-world settings need to be considered from the point of view of effectiveness and cost effectiveness, and inequalities.

The variability in effectiveness and the likelihood of success of interventions are crucially filtered through two sets of mediating factors which are, to some extent, independent of the mechanics of the intervention itself. These are the enthusiasm, expertise and engagement of the staff carrying out the intervention; and the local delivery infrastructure. For example, sex education is much more effective when delivered by enthusiastic and motivated staff. In the absence of much in the form of intention to treat analysis in public health, the effects of the real world have to be disentangled when assessing study results. Statistical analysis of confounders can help here, but the confounders add a layer of complexity to the understanding of effectiveness and cost effectiveness. The most rigorous analysis of these confounders is to be found within the HDA's evidence into practice work (Kelly *et al.*, 2004).

Biological and social variation

Clinical treatments take place in the context of a relatively narrow, well defined span of biological variation in individual responses. Public health interventions take place within a very wide spectrum of social difference in the population which is not itself well defined (beyond usually blunt measures of socio-economic difference), and the variability in the population is not well mapped. Unsurprisingly, individuals respond in widely different ways to different public health interventions, so different interventions may work better than others with some individuals – the stubborn class differences in smoking rates are a testimony to this. There has been some limited attention to this effect in the literature. Better information is needed on tailoring interventions, and it may be efficient to have a range of interventions available. The HDA Evidence Base has consistently pointed to the need for tailored and targeted interventions, and the argument has repeatedly been made by the HDA for a much better understanding of the social differences in the population. Economic appraisal needs to embrace the diversity in the population and consequent variations in potential responses (Graham and Kelly, 2004).

Absence of 'D' in public health R&D

In contrast to drug trials, public health interventions are often implemented without much pretrial development. Thus public health interventions can change during their implementation, complicating interpretation of the results.

When should effectiveness be measured?

The impact of public health programmes is not short term. At what point is an intervention judged to have succeeded? – at some point immediately after the intervention has been completed; at three or six months, or a year, or longer? And what is the capacity for effects to atrophy or decay with time? In real time, the final outcomes of public health

interventions may take many years to be realised, and thus may be difficult to attribute directly to any one intervention. Retrospective analysis may be possible, but only if steps were taken originally to ensure the appropriate data were collected. There may be potential for using secondary data to model longer-term impacts.

How should effectiveness be measured?

There are no standard methods to give common currency to the impact of public health interventions, other than the monetary valuation approaches used within CBA. The use of common currency outcome measures – estimates of cost per quality-adjusted life year (QALY) to evaluate public health interventions – needs careful assessment. Cost per QALY estimates already exist in the more clinical areas of public health evaluation, and there is much work in progress in terms of smoking cessation services. Many of the estimates produced to date show that public health interventions compare favourably with treatment interventions.

However, the QALY measure may not be sufficient to capture the complex impact and context of psychosocial treatments in public health and the wider range of relevant non-health outcomes. Past experience has shown that QALY outcome measures may not reflect sufficient differences between effects of interventions to decide priorities for public health practice. Attempts to draw comparisons of interventions across public health and healthcare interventions should be made in full knowledge of the limitations of the one-size-fits-all approach. Intense interventions of long duration cost more than their shorter, less intense counterparts, and there may be a non-linear association between intensity and duration of intervention and cumulative outcomes. This needs to be borne in mind when making cost per QALY comparisons of clinical and psychosocial public health interventions from the limited cost-effectiveness evidence.

Individual versus population measures

Should success be measured at an individual level or at a population level? Economists usually argue that the costs and benefits to individuals should be an integral part of economic evaluation. However, for pragmatic reasons appraisals of public health are frequently conducted from the viewpoint of the NHS and other public sector agencies. It can be argued that either costs and benefits are unlikely to vary significantly or systematically between individuals; or that individual costs and benefits are unlikely to vary significantly between treatments. Neither argument is necessarily sustainable in the area of health improvement. A better understanding of individual costs and benefits, and how these relate to individual outcomes, may help in understanding why certain interventions work better than others, and why they work

differently with different groups. Where appropriate, this type of analysis needs to be integrated into the design of evaluation studies and may have implications for the size and cost of studies.

The solution: an analytical framework

The problems noted previously are not reasons not to undertake an economic analysis. They have to be acknowledged and then incorporated into the analysis by considering the existing information, building assumptions into the analysis, and making them explicit.

There are a number of different potential methods of evaluation available to the economist, although the emphasis in most thus far is on the evaluation of individual interventions rather than the complex programmes found in public health. Several types of economic evaluation are outlined briefly here, each of which has a different scope and suitability.

The simplest economic studies are concerned only with costs – not (usually) because they see outcomes as irrelevant, but because, in relation to the services under study, the health and quality-of-life outcomes have already been established from other research, or are currently not measurable because of conceptual difficulties or research funding limitations. One of these cost-only methods is the **cost-offset study**, which compares costs incurred with (other) costs saved. For instance, a new public health intervention might have higher start-up costs, but may reduce the need for in-patient admissions and thus lead to cost savings downstream. The limitation of such an approach, though, is that it does not look at alternative use of the resources elsewhere. **Cost-minimisation analysis** extends economic analysis further by considering alternative uses of resources, and proceeds in the knowledge that previous research has shown outcomes to be identical in the intervention or policy alternatives being evaluated. Well conducted cost-minimisation analysis can be thought of as a special type of cost-effectiveness analysis, but in most instances such evidence will not be available and more complex evaluation will be required.

Cost-effectiveness analysis is the most common approach used in economic evaluation, and synthesises single outcomes and costs (eg increase in life years gained) to health promotion intervention. An obvious weakness with the strict cost-effectiveness methodology is the enforced focus on a single outcome dimension (in order to compute ratios), when public health programmes can have multiple outcomes. Carrying multiple outcomes forward is less tractable analytically, but three options are available, associated with three other modes of economic evaluation. One option, **cost-consequence analysis** (CCA), is to retain all or most outcome dimensions using whatever appropriate measures are available. The other two options weight the

outcomes, either in terms of money (cost–benefit) or in terms of utility (cost–utility).

Cost–utility analysis measures, then values, the impact of an intervention in terms of improvements in preference-weighted, health-related quality of life such as the QALY. Cost–utility analyses allow comparisons to be made across all areas of health intervention, aiding resource allocation decision making. But they do not capture the broader non-health consequences and opportunity costs of programmes.

Cost–benefit analysis (CBA) values all costs and benefits in the same (monetary) units. If benefits exceed costs, the evaluation would recommend investing in the programme, and *vice versa*. CBAs are thus intrinsically attractive, and theoretically an ideal approach, but conducting them can be problematic because of the difficulties associated with valuing outcomes in monetary terms (including public acceptability).

Given the nature of public health interventions and their impact across many other public sectors, there is a strong case, in this area in particular, for more attention to be placed on CBA. NICE guidance currently recommends only a health and personal social services perspective (although costs to patients and families may also be reported). CBA would theoretically adopt a complete societal perspective, but pragmatically, as a minimum from the policy-making perspective, the analysis could at least then be conducted from the perspective of the total public budget, which makes intuitive sense given the broad impact of these interventions. Valuation methods used by health economists in CBA studies have concentrated on direct valuations by either asking individuals to state the amount they would be prepared to pay (hypothetically) to achieve a given health state or health gain, or observing actual behaviour and imputing implicit values.

More recently, an approach first developed in marketing has been used to value health interventions. Commonly known as **discrete choice experiments**, this approach allows individuals to rank different real-world scenarios, which may consist of several dimensions. Although its use in health promotion and public health has been limited so far, this approach has the scope to explore some of the individual characteristics and environmental factors that may influence the uptake of interventions and changes in behaviour. By including cost as one of these dimensions, a monetary value can also be elicited. Although complex, in that the scenarios need to be devised carefully, this approach has the advantage of not specifically asking individuals to put a monetary value on health states or health gain, which can make the technique easier to administer than traditional willingness-to-pay studies, and also promote its acceptability to decision makers.

Cost–consequence analysis is similar to cost-effectiveness analysis in terms of the questions addressed, but is applied to evaluate interventions with more than one multi-dimensional outcome. In CCA, for each alternative the evaluation would compute total (and component) costs, and measure change along every one of the relevant outcome dimensions. The cost and outcome results would need to be reviewed by decision makers, and the different outcomes weighed up (informally and subjectively) and compared with costs. While this approach has theoretical problems, as it does not synthesise benefits and costs, it can be used to look at issues of changing behaviour that are so crucial to public health interventions. CCA does not attempt to combine measures of benefit into a single measure of effectiveness, so it cannot be used to rank interventions. Nevertheless it is a systematic technique that allows decision makers to weight and prioritise the outcomes of an evaluation. It is possible to produce cost-effectiveness comparisons for single outcomes within the CCA framework. The analysis involves focusing on a particular problem, for example teenage pregnancy, then considers two or more possibilities: to do something (one or more interventions); or to do nothing. Then, using either existing available data *post hoc*, or deriving new data, an appropriate method is established for an analysis of costs and outcomes in a common currency. The evidence collected needs to relate to four questions: what works to improve health; what works to reduce inequalities in health; what works in changing behaviour; and what works in promoting uptake of behaviour change interventions? The sources of evidence for these questions will be different. Outcomes can be measured in terms of QALYs, healthy year equivalents or disability-adjusted life years. Other outcomes might be in terms of teenage pregnancies or conceptions averted, awareness and take-up of contraception or avoiding adverse circumstances of teenage pregnancy, such as missed education and training opportunities. Comparisons between interventions would require capturing the wide range of consequences (good and bad) and the potential costs (to the initial provider, partner organisations and other services). A cost-effectiveness ratio for every intervention would compare cost (minus the saving in resources) with a unit of outcome such as a QALY, but the analysis can also show the trade-off between different outcomes across the alternative interventions.

Conclusions

In the longer run, the development of properly conducted, comprehensive CBA across all the interventions identified as capturing the broad, cross-sectoral impact of public health interventions should be a priority. CBA and CCA should be linked to data and evidence about effectiveness. Additionally, the links between measurable outcomes from

policies, programmes and interventions and long-term health outcomes need to be modelled. There is a need for sophisticated economic and effectiveness models that can be used to evaluate the wider implications and impacts of different prevention strategies, and to encompass impacts on inequalities.

Approaches to economic assessment undertaken by economists, traditionally not considered to be 'economic evaluation', could also be conducted. For instance, econometric studies on the impact of taxation changes on consumption of alcohol and cigarettes are promising lines of investigation.

It is important to understand the context in which a public health intervention operates, and thus move beyond the 'black box' within which much traditional health economic evaluation sits. In particular there is a need to gather information on process outcomes and factors influencing changes in the behaviour of individuals and populations, as well as the institutional arrangements that may influence both the costs and effectiveness of interventions. Such information can help decision makers identify whether a successful (or unsuccessful) initiative undertaken in one locality might be generalisable to other settings.

There is presently insufficient economic evaluation evidence to knowledgeably inform public health policy making locally or nationally. This state of affairs can be changed, but will require strong direction to ensure the priorities for economic evaluation evidence become organised and coordinated at local, regional and national levels. Teams of economists working in isolation from the interventions and service-users they evaluate will not help to deliver the true scenario.

Key points

- The mechanisms of economic appraisal may, can and should be applied to public health interventions.
 - Economic appraisal should be linked to the appraisal of effectiveness.
 - Economic evaluations should be a routine and consistent part of all public health interventions.
 - Economic evaluation should use a common economic framework. A common framework would facilitate and enhance a consistent and transparent basis for decision making.
 - Such analysis should retain the shape and feel of a traditional economic framework, but will need enough flexibility to capture the multi-dimensional, complex and layered outcomes of public health policies and interventions.
 - The economic analysis must be able to inform evaluations of the effectiveness of interventions that reduce inequalities in health.
- At the societal level, the ideal method in the long run is cost–benefit analysis (CBA), which would integrate outcomes into a single measure, allowing comparisons to be made between interventions. This would permit the resource trade-offs within and between government departments to be exposed.
 - Given the practical difficulties in applying CBA, the use of cost–consequence analysis (CCA) within a pragmatic framework is suggested to capture the layered outcomes of public health interventions at the local level.
 - CCA is similar to cost-effectiveness analysis in terms of the questions addressed, but is applied to evaluate interventions with more than one outcome, and where combining these outcomes in a full CBA is not feasible.
 - CCA does not attempt to combine measures of benefit into a single measure of effectiveness, so it cannot be used to rank interventions.
 - The full range of research methods should be used as an adjunct to CCA. This would include randomised controlled trials, quasi-experimental designs and qualitative methods.

Further reading and ongoing work

Standard texts that may usefully be consulted are Drummond *et al.* (1997) and Sefton *et al.* (2002). Recently several initiatives have been undertaken, both in the UK and elsewhere, to explore some of the issues in the economic evaluation of complex interventions (Hale *et al.*, 2005). The UK Health Promotion and Health Economics Forum has published a manual providing guidance on economic evaluation in the area of health promotion. Similar work has been undertaken on behalf of the Joseph Rowntree Foundation (www.jrf.org.uk) to look at how economic evaluation techniques traditionally used in the health arena can be applied to other areas of social welfare, and what can be learned by looking at how other branches of economics, and other disciplines, have approached evaluation. In the USA, the Centers for Disease Control and Prevention (www.cdc.gov) continues to build up an evidence base on the cost effectiveness of health promotion and public health interventions, and has developed a checklist and guidance to help improve the comparability of studies. Recognition is growing among health economists and others of the importance of qualitative approaches and the general challenges of evaluating complex multi-sectoral interventions. One positive step is the imminent creation of a joint Cochrane/Campbell Collaboration Economics Methods Group (www.med.uea.ac.uk/research/research_econ/cochrane/cochrane_home.htm) that will look at these issues in the fields of health, social welfare, education and crime.

Annex: Examples of economic evaluation

Introduction

In most potential priority areas for public health interventions, economic evidence can be identified in the literature. The US Centers for Disease Control has been building up a database of cost-effectiveness evidence, while a recent overview of evidence on the cost effectiveness of a wide range of policy and individual interventions to prevent/reduce smoking is available from the WHO Health Evidence Network (www.euro.who.int/HEN ; www.euro.who.int/document/e82993.pdf).

There are areas where evaluation is more limited, perhaps due to their complexity, or to a lack of demand and thus resources for such evaluations. For instance, recent reviews of the effectiveness of breastfeeding and of falls prevention by the NHS Centre for Reviews and Dissemination noted that only very limited evidence was available in these areas.

Where economic evaluations have been conducted, they have concentrated on individual interventions, similar to drug and technology evaluations, rather than those aimed at improving population health. The challenge in many respects is not about identifying studies providing evidence for the cost effectiveness of public health interventions, but rather about the difficulties in trying to compare the results of studies because of significant methodological differences and limitations, as well as poor reporting.

Few have looked beyond final outcomes to also consider the process by which those outcomes are achieved. Many public health/health promotion interventions will be successful only if individual and community behaviours can be altered. Without understanding these factors, it is difficult to determine the transferability of the results of any one successful intervention to a different setting. This is of particular importance given that much of the available literature derives from the USA, where the context can be very different. Rather than trying to come up with firm conclusions about the strength of cost-effective evidence, this section provides information from some examples of economic evaluations in this area, emphasising the types of intervention examined and methods used, as well as the public health issues addressed. An example is also provided of ongoing work seeking to incorporate contextual information into economic evaluation.

Example 1: Modification of diet through health promotion

The complexity of such studies can be seen by looking at a health promotion programme to modify the population's intake of salt. A simulation model was constructed that synthesised data on the effectiveness of various

interventions. A range of health promotion interventions were considered, including information campaigns, requirements to declare the salt content in food, and taxes on salty food or subsidies for foodstuffs with less salt. Intermediate outcomes in terms of blood pressure reduction, and their subsequent impact on myocardial infarction and stroke rates, were estimated for an entire population. Overall, the model indicated that health promotion would be a cost-saving intervention as the direct costs associated with the programme, including the impact of taxation, would be less than future medical care costs avoided and lost productivity due to morbidity and premature mortality. By using a model it was possible to extrapolate the data to consider the consequences for the whole population and test for uncertainty in variable parameters, and to build a greater case for investment in this form of health promotion. A contextual analysis of the target subgroups might have helped inform decision makers as to which approach was most appropriate to those target groups of highest priority (Selmer *et al.*, 2000).

Another modelling study focused on estimating the costs and health consequences (reduced incidence of cancer) arising from increasing the dietary intake of fruit and vegetables to recommended levels. Demographic, health and healthcare cost data from 20% of the Danish population over a four-year period were included in the model. The model found that the strategy would be dominant over the current situation as daily life expectancy might be increased by between 0.8 and 1.3 years, and between 19 and 32% of all cancers might be prevented. Overall healthcare costs would remain unchanged – resources saved in cancer treatment would be required for additional lifetime healthcare costs for a longer-living population. This study, while useful, also demonstrates some of the limits of current economic evaluation in this area, as it does not take into account the costs and different mechanisms needed to promote behaviour change. Such models would also benefit from considering uptake rates, perhaps generating some of this information from additional qualitative and quantitative research (Gundgaard *et al.*, 2003).

Example 2: Evaluating the impact of financial incentives as a way of modifying behaviour

Although not fitting directly within the traditional mode of economic evaluation, econometric analyses have been used to estimate the impact of taxes (and subsidies) on the consumption of goods such as cigarettes, alcohol and healthy food options. An area less well explored has been the evaluation of direct financial incentives at an individual

level as a way of modifying behaviour. One example is a Quit and Win campaign (www.quitandwin.net) that involved rewarding individuals with prizes as part of a mass media strategy. The intervention was found to be very much at the low end of the cost-effectiveness thresholds considered acceptable by NICE. Financial incentives in the form of lottery prizes being awarded have also been evaluated as a mechanism to help improve vaccination uptake rates, and again these appear to have an acceptable cost-effectiveness level compared with other funded interventions.

An additional example of the impact of modest financial incentives is a pilot study undertaken in Denmark comparing three different approaches intended to increase influenza vaccination rates in target population groups. The study compared several different interventions: personal invitations to family doctors; a letter from local authorities with user fees waived for vaccinations; personal invitations from family doctors; and user fees being waived. The latter method increased the uptake rate from 40 to 70%. More generally, there is a small but growing body of literature on the role of financial incentives paid to health and other sector professionals to promote screening and vaccination initiatives. Although ethically open to question, there may also be a case for looking at the use of direct financial incentives for populations to use healthy interventions – eg paying individuals a small fee to be vaccinated (Nexoe *et al.*, 1997).

Example 3: Evaluating the cost effectiveness of mass media campaigns on behaviour

Although there has been much written about the effectiveness of mass media campaigns in changing health behaviour, including a Cochrane review, much less has been done to evaluate their cost effectiveness, although some studies can be found. One study, for instance, evaluated a four-year television and radio campaign to deter teenagers from beginning smoking in four communities in the USA. Markov modelling was used to estimate the impact on life expectancy as a result of individuals not taking up smoking, and students were surveyed immediately at the end of the four-year campaign, then again two years later. The intervention was found to be cost effective, with a low cost per life year gained compared with many other interventions. Again, the difficulty with this analysis is that further information on the context is needed to determine whether the results are generalisable to other settings (Secker-Walker *et al.*, 1997).

Studies of mass media campaigns emphasising the dangers of alcohol and driving in the USA and Australia have also been reported to be cost-saving overall, with benefits far outweighing costs. Again, though, evaluation requires greater depth to determine what is actually working and

how; one review of effective measures to reduce alcohol misuse in Scotland reported that the evidence for mass media interventions working was weak, and that they may influence knowledge and awareness rather than behaviour *per se*. It is also important to examine the impact of mass media and community public health campaigns on specific target groups. For instance, one recent study in London looking at the cost effectiveness of a smoking cessation campaign targeted at the Turkish community reported a favourable cost-effectiveness ratio of £105 per life-year saved (Stevens *et al.*, 2002).

Example 4: Brief interventions

Short-term interventions to promote public health have been subject to much evaluation, but only limited economic evaluation. Three economic studies have shown brief interventions to prevent alcohol misuse to be relatively cost effective due to fairly high levels of effectiveness and low costs. Modelling the results using UK cost data suggests that the cost per life saved is in the range £1,446–£2,628 if no savings in resource use are taken into account. If resource savings are considered, then the benefits exceed the costs of the intervention (www.scotland.gov.uk/health/alcoholproblems/docs/lire-00.asp). Brief interventions for smoking cessation have been estimated to cost around £73 per QALY (www.hta.nhsweb.nhs.uk/fullmono/mono616.pdf). However, this result should not be applied too simplistically. More intensive interventions for smoking cessation which have higher costs per QALY, such as bupropion, NRT and counselling at £487 per QALY, still represent good value for money and have a higher impact in terms of quit rates.

Example 5: Workplace health promotion

One area where a growing body of economic evidence exists is for workplace health promotion, in part because there have been greater demand and resources available to look at interventions seen to have a direct impact on productivity. There is good evidence, for instance, of the cost effectiveness of systematic, organisation-wide approaches to promote positive mental health at work and reduce work-related stress. These have recommended including staff support, two-way communication structures, enhanced job control, increased staff involvement, and an improved working environment in programmes (www.nelh.nhs.uk/nsf/mentalhealth/whatworks/knowhow/workplace-cfa.htm). In the USA, employee assistance programmes providing counselling services for employees and their families for a range of issues have been evaluated. These programmes have been found to be highly cost-saving, with improvements in productivity and reduction in absenteeism more than outweighing the direct costs. The analyses can

generally also be considered to be conservative, as they do not take into account additional health and community benefits associated with maintaining employment (Alexander, 1990).

Example 6: Incorporating context into ongoing economic evaluation of a community health promotion programme

In addition to strengthening the quality and transparency of economic evaluations, there is much scope for augmenting the essential elements of economic evaluation with additional qualitative data to inform the context. This can be illustrated by looking at an ongoing randomised trial of an integrated programme of community-based and primary care strategies designed to improve the emotional and physical health of women after childbirth. The scheme includes educational programmes for primary healthcare professionals; distribution of mothers' information kits; provision of befriending services; and coordination of services by a community development centre. The evaluation of the programme includes an 'ecological' economic evaluation. This incorporates all the standard elements of an economic evaluation, but also recognises that the programme itself is a dynamic entity that interacts with the local context, with important non-health-related outcomes. In order to capture

some of this contextual information, a variety of research methods are being used. These include:

- Event logs documenting actions and impacts in each of the intervention communities
- Diaries kept by, and interviews with, community development officers on how the programme is evolving
- Interviews with other key stakeholders
- Documentation of resource costs and impact of changes in health outcomes on resource use
- Focus groups in non-study areas to ascertain what value other community groups place on changes in health status due to the intervention
- Community-based postal survey to elicit community values for project-related social outcomes
- Organisational survey before and after the PRISM intervention to document inter-organisational collaboration and the impact this has on the collaborations over time.

The aim is not only to help with interpretation of the success of the programme as it evolves, but also to build additional factors into models that might be used to consider the programme's transferability to other settings. Such approaches may increase the costs of studies considerably, and may not be appropriate for all public health interventions (Hawe *et al.*, 2004).

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