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**THE COST-EFFECTIVENESS OF  
ALCOHOL SERVICES:  
LESSONS FOR CONTRACTING?**

**By Christine Godfrey**

**YARTIC OCCASIONAL PAPER 2**



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**October 1992**

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## ACKNOWLEDGEMENTS

This paper draws on work commissioned by the Department of Health in 1989. Material produced for the Department of Health at that time has been updated and reworked to produce this paper. I am grateful to Mike McKenna, Alan Maynard and Duncan Raistrick for their comments on an earlier version of the paper.

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## ABSTRACT

The purpose of economic evaluations is to identify which interventions give the best value for the resources expended. Results from such evaluations would be a useful aid to both purchasers and providers in setting contracts and deciding priorities for alcohol services. The application of economic techniques to a range of alcohol interventions is considered in this paper.

A large number of problems are associated with alcohol misuse. The costs of these problems affect not only the drinker and their family but also the rest of society through the costs to employers, the criminal justice system, and the health and social services. Appropriate interventions may be one method of reducing these social costs. Economic evaluations include both social and individual outcomes unlike financial and some clinical studies. Well-founded economic studies will also consider the costs to individuals of undertaking treatment. These costs including travel costs, out of pocket expenses and lost time for work or leisure may not be inconsiderable for some types of alcohol interventions. Identifying, measuring and valuing the inputs and consequences of interventions from an economic perspective may consequently lead to a different ranking of alternative options than other evaluation techniques.

Most of the available economic studies of alcohol services have been undertaken in the United States. These studies are critically evaluated. The major questions that have been addressed are: whether the cost of alcohol treatment is offset by a reduction in other health care costs; whether alcohol treatment is worthwhile, ie

are the costs of its provision outweighed by the benefits; and which settings and modes of services are the most cost-effective.

There is a considerable body of evidence from both clinical and economic interventions indicating that low cost interventions may be as effective as more expensive treatments for many problem drinkers. Brief interventions may also be offered to a much broader range of drinkers than have traditionally presented to services. While such a strategy may be cost-effective it is not without resource consequences. Other groups will remain in need of more intensive interventions. Matching services to clients may improve outcomes and result in interventions being cost beneficial to society as a whole.

Information about the availability of different services, their associated costs and benefits are currently scarce. Without better routine data and UK based economic evaluations both purchasers and providers are likely to continue to base priorities and contracts on inadequate and in some cases misleading information.

## INTRODUCTION

Many different problems are associated with alcohol misuse. The costs of these problems are borne not only by the drinker and their family, but also by the rest of society through the costs to employers, the criminal justice system, and the health and social services. Appropriate interventions may be one method of reducing these social costs. Providers of alcohol services have, however, often found it difficult to obtain funds for such interventions and only a small proportion of people with a severe alcohol problem receive any specific treatment (DoH, 1991).

Several policy reforms are affecting the funding, organisation and delivery of alcohol services in the UK. A feature of both the National Health Service reforms and the Community Care legislation is the explicit separation of the purchasers and providers of services. Detailed contracts will eventually replace grants as the main source of revenue for both health service and voluntary agencies (Alcohol Concern, Scoda, 1990). Alcohol agencies need to demonstrate that their services are cost effective if they are to compete effectively for scarce health and social care funding. The issues arising from the application of alcohol services are explored in this paper.

An important issue that is associated with the growth of such contracts is their monitoring. The monitoring of contracts efficiently requires information about the costs and outcomes of different types of services for different client groups. Such information is scarce at present, but attempts are being made to develop monitoring

procedures. One question is whether an economic approach requires different or additional data from other audit and evaluation methods.

The differences between economic and other evaluation techniques, and the consequences for designing well founded economic studies are considered in the first section of the paper.

One question which has received a lot of attention, especially in the United States, is whether the costs of alcohol treatment may be offset against a fall in all medical expenditure after a treatment episode. Studies concerned with this question are reviewed in the second section, and their implications for planning alcohol services within the UK are discussed. In the third section, the limited number of cost effectiveness studies are critically assessed. The results of the economic and non economic studies highlight the difficulties in designing and undertaking evaluations of alcohol services. These issues are considered in the final section of the paper, and some conclusions are drawn about the priorities for research to inform both purchasers and providers so that their contracts lead to the most efficient use of resources for the health and social care of those with alcohol related problems.

## ISSUES IN THE ECONOMIC EVALUATION OF ALCOHOL SERVICES

An economic evaluation involves identifying, measuring, valuing and then comparing the costs and outcomes (or benefits) of a number of alternative interventions or policies. The purpose is to identify which options give the best value for the



resources expended. Undertaking such studies involves a number of stages and the decisions taken at various points in this process determine the extent to which the results have general relevance. The first stage involves examining how the economic evaluation can be designed to aid policy choices. The next step is to decide which economic evaluation technique is appropriate for the study question. The scope of the economic evaluation is determined by the perspective adopted. In some circumstances the contracting agency may only be concerned by the resource implications for that agency and a narrow perspective may be taken. In general, however, economists advocate the use of a wide societal perspective. In most situations, there are a large number of alternative options available and the next step is to choose which options will be evaluated. These stages have a useful function, even before more detailed evaluations are undertaken, in clarifying issues (Shiell and Wright, 1988). This is followed by examining the inputs, processes and outcomes of each intervention thereby identifying the different costs and benefits associated with the chosen options. A number of other issues may affect the final comparisons of costs and benefits and the policy recommendations made in the final stage. More details of issues involved in designing and undertaking economic evaluations of alcohol services at each of these stages are now considered.

### **The Study Question**

In planning alcohol services, a number of different evaluation questions can arise. At the broadest level, there are questions about the allocation of resources between alcohol and other health and social care services. For those holding budgets specifically allocated to alcohol, there may be questions about the distribution of

resources between health promotion, prevention, early interventions, treatments for the more dependent drinkers and care for the chronically damaged drinkers. However, there are many alternative prevention and treatment strategies. Providers may offer services differentiated by population group or service needs. There are therefore a large number of alternative packages of services that could be evaluated. Each level of evaluation is to some extent linked with results of the more specific studies often forming the basis of broader level evaluations. Both purchasers and providers have an interest in all levels of evaluation, although providers may be most interested in establishing the relative cost effectiveness of their particular package of services.

Economic evaluations are generally undertaken when a new service or treatment is proposed with the costs and benefits of the new being compared to the existing service. However, not all policy decisions are of this sort. It is also possible to undertake evaluations of different mixtures of services and to examine how the balance between costs and benefits may change if one part is expanded or contracted. These types of evaluations are particularly important in the alcohol area where any expansion or contraction may alter the types of patients or clients taking up the services and consequently the marginal, or additional, costs and benefits arising from the change in service provision.

#### **The Choice of Economic Evaluation Method**

There are three main types of economic techniques currently used to evaluate health interventions: cost benefit; cost effectiveness; and cost utility. These

techniques differ mainly in the way the benefits of different options are measured (Drummond et al, 1987). The choice of technique will also partly determine the generalisability of the results for different types of policy questions.

The most common type in use is cost effectiveness analysis. The main feature of this method is that the benefits of the interventions or programmes are measured in the most appropriate natural or physical units. In comparing different alternatives, the study question may be in one of two forms. First, it may be to determine which option maximises the benefits given a set amount of resources, for example which alcohol programme gives the greatest health gain, given the current budget. Alternatively it may be to find which programme achieves a given target at the least cost, for example reducing the number of problem drinkers in line with the Health of the Nation (DoH, 1992) targets at least cost.

A whole range of different process and outcome measures could be chosen for cost-effectiveness studies of specific alcohol services. Examples of process measures include the numbers recruited to a service, or the numbers completing an intervention. Examples of outcome measures include the numbers reaching a controlled drinking target, or the number of abstinent days. Such process and outcome indicators may be easier to measure than general health or well-being which may have several dimensions. Whether the technique and these sort of measures are appropriate depends on the study question and whether the chosen measure fully reflects the objectives of the alternative interventions. One part of a local strategy may be, for example, to set targets for the participation of certain

groups of the population in treatment services, and different alternatives to meeting these admission targets could be evaluated. However, this comparison would only be useful if the alternative options achieved the same outcomes, i.e. the programmes resulted in the same compliance rates and benefits to clients in health and social well being. Results from studies using process or specific outcome measures do have the disadvantage that their results are not useful for more general policy decisions. For example, it would not be possible to compare the results of a study giving costs per person taking up a service with another study which gave costs per person reaching a controlled drinking target.

One way of overcoming the problem of different physical outcome measures or comparing programmes with multiple outcomes is to measure everything in common units. One obvious approach is to value everything in monetary terms. This type of evaluation is called cost benefit analysis. An example in which the outcomes of the evaluations may be different and there is more than one specific outcome would be the comparison of a policy to ensure convicted drink-drivers received treatment before regaining their license to a policy of road improvements (a harm minimisation option), or to other alcohol policies such as an increase in taxation (a general prevention strategy).

If a cost benefit analysis is undertaken and the study perspective taken so that all costs and benefits are included, the results of the study will be in a form that can be compared to other cost-benefit analysis of very different activities. For example, alcohol interventions could be compared to education or other local

authority services. One obvious disadvantage of this technique is, however, that to achieve the generalisability of results, many costs and benefits may have to be identified, measured and valued. Some items such as loss of life or pain, grief and suffering are particularly difficult to value.

For assessing health interventions, measuring changes in mortality and morbidity is central. Some of the methods economists have used to value life in monetary terms give different values according to sex and employment status, and this raises a number of ethical issues. The National Health Service is based on egalitarian principles of "being available to all, regardless of income" (DoH, 1989). It would therefore seem appropriate to devise measures of interventions which reflect these principles. Physical units, such as life years saved, have been frequently used in cost effectiveness studies of acute health interventions and such studies are based on the assumption that a year of life is of equal value whoever receives it. Mortality measures alone are not always useful as many interventions affect quality as well as quantity of life. Economists and others have therefore attempted to devise measures which include effects on mortality, morbidity and quality of life such as Quality Adjusted Life Years (QALYs) and well-years (Williams, 1985). Economic evaluations using these type of measures are called cost utility analyses. Some of the problems of devising adequate measures of the outcomes of alcohol services are discussed in more detail below.

### **Perspective of the study**

For some purchasers the main interest of any evaluation study may be the

consequences for their own agencies. So, for example, a health district may want to calculate all the resource implications for the NHS, but not be concerned about the costs falling on local authorities, police, voluntary agencies etc. Currently alcohol services receive funding from a number of agencies and there is a danger that, if agencies took such a narrow perspective, the results of an evaluation may favour an option in which the most costs were shifted to other agencies. If other agencies are funded from public funds, this may not be the most efficient solution for the taxpayer. Also a narrow perspective may fail to take account of the costs falling outside the statutory sector or on individuals, and consequently fail to be efficient for the society as a whole. While the financial consequences for particular agencies are important and should be identified, most economists would advocate that a wide perspective is taken so that the option that involves the most efficient use of scarce resources can be identified. The nature of alcohol problems, which include health, employment and legal problems, and alcohol services, which span across different agencies, can only reinforce this recommendation. Following recent legislation, the new and explicit wider duties of health and local authorities also suggest that the full consequences of different policies should be examined.

#### **Choosing the alternative interventions to evaluate**

Examining the options available to meet the policy objectives is an important part of the evaluation process. If this is not done, then a potentially more efficient policy could be overlooked. For example, a study may indicate that day patient detoxification was more cost effective than inpatient care for a particular group, but a third option GP care may be both less costly and bring more benefits for this

group. For many evaluations and policy questions, it is also important to explicitly value the "do nothing" alternative, i.e. services remaining as present.

When new methods of providing services are suggested by either purchasers or providers the study question may be relatively simple. That is whether the proposed service is more economically efficient than current practice. For more general service reviews and to answer broader policy questions, however, there can be a very long list of alternative options. There is a cost to undertaking any evaluations and it is therefore prudent to move from a long list to a shorter set which would be fully evaluated. The options may obviously group in terms of known costs and benefits but other criteria such as acceptability, equity and policy constraints may also be used to limit the alternatives considered.

#### **Identifying, measuring and valuing cost**

The basis used in economic studies is the concept of opportunity costs rather than simple financial costs. Opportunity costs of any resource are equal to the value of its best alternative use. Some resources may have zero financial implications if used to provide a new service, for example, rent free rooms or volunteer labour, but these resources do have an opportunity cost as they could be used to provide other activities. Other aspects of service which may involve monetary transfers are not resource costs. One relevant example is the sickness benefit paid to those with alcohol related diseases. The benefits themselves are transfers from one group, the taxpayers, to another group, those with alcohol related sickness absences. The opportunity cost is the value of the lost productivity of the worker. Hence

economic valuations use a different basis than monetary transactions.

Another difference between financial and economic appraisal is the inclusion of all direct and indirect consequences of the service provision. Direct costs to the patient such as travel costs should be considered as well as the costs falling on other agencies. Also there are the indirect costs of lost productivity or leisure time for the patient while attending the service. Finally there are a number of intangible elements such as anxiety, pain, grief and suffering. These costs are difficult to value but may vary between programmes and it is therefore important to at least consider the magnitude of these types of costs.

In theory a comprehensive study from a societal perspective would involve a large list of costs that need to be evaluated. In practice some elements may be common to all the alternative options. For the specific question under study it would not be necessary to value these common costs, but this may limit the generalisation of the results to other policy decisions. Another factor deciding which of the identified costs are to be evaluated will be their expected magnitude. Producing a value for some items may not be worth the time and effort involved, if they are not likely to have a significant impact on the final conclusion.

Valuing costs without a market value which reflects their opportunity cost can obviously be problematic. Any method involves assumptions and value judgements. To value volunteers time, for example, a related market value such as a proportion of the amount needed to employ someone or an individual's own valuation of the



time they sacrifice could be used. Other problems involve allocating common items such as capital costs to individual services or clients (Drummond et al, 1987).

### **Measuring and Valuing the Outcomes and Benefits from Alcohol Services**

Measuring the outcomes from interventions is a central feature of all evaluation techniques and difficulties of establishing the effectiveness of alcohol treatments has been frequently documented (Miller and Hester, 1986; Institute of Medicine, 1990). The purpose of the study may also have effects on which outcome measures are emphasised and how they are valued. For health interventions there may be a need to compare the outcomes of alcohol services with other health interventions, for example, a smoking programme or renal dialysis. These sorts of comparisons may require the health benefits to the individual being measured by a generic health indicator such as QALYs or well years. In contrast, treatment for offenders may be compared to other policies to reduce criminal activity and hence the main outcome measure of interest would be the rate of offending. From the point of view of an employer, the relevant outcome of a workplace programme is the impact on productivity and training investment (Powell, 1990).

One of the most important difficulties that arise from the economic evaluation of alcohol programmes is the wide range of benefits that may arise as a consequence of treatment. These include employment, social functioning, criminal activities, psychological and physical health of the individual and their families. In addition alcohol problems are costly to the society and any reduction brings a range of benefits (in terms of averted costs) to employers, health authorities, law

enforcement, potential victims of drink-driving etc.

Many clinical studies have, however, taken a narrow view of the outcome of alcoholism treatment and confined measurement to drinking outcomes. Indeed many studies have only considered abstinence as a successful outcome. With such a severe criteria for success, it is not surprising that many early studies came to pessimistic conclusions about the effectiveness of treatment for alcoholism. Armor et al (1978), in an influential review of alcoholism treatment, stimulated the debate about whether total abstinence is a necessary goal for all severe problem drinkers. Many studies following this report had more comprehensive measures of drinking behaviour. Some, but not all, studies collect data on economic and social functioning before and after treatment, which could be used to measure the wider benefits to individual and the averted costs to the rest of society.

If abstinent days were highly correlated with all other aspects of the individual's quality and quantity of life, then this measure would be adequate for a cost effectiveness study comparing a number of alcohol services. If not, then some wider drinking measure may be useful for this type of economic evaluation. There is some support for wider measures as any reduction in drinking can have beneficial effects on the physical health of chronic alcoholics. If, however, the economic evaluation was based on an abstinence measure, but more benefits could be gained from controlled drinking, then a cost effectiveness measure based on the abstinence measure could be misleading. Abstinence could involve patients in unnecessary intangible costs and those not achieving this target could be accruing benefits and

both these may vary between the different services being considered. If other indicators of physical and psychological ill health are not highly correlated with summary drinking behaviour measures, and these differ between treatments, then it will be necessary to devise some composite index to compare the costs and benefits of the alternative treatments. This process may involve trying to measure different outcomes in monetary values or the construction of a specific "QALY" type measure. The arguments for and against specific programme measures of this type have been considered in other areas (Donaldson et al, 1988).

Babor et al (1988) reviewed the clinical evidence and suggested that existing studies did not clearly support either the unitary or multidimensional approaches to treatment outcomes. Darke et al (1992) have recently proposed a measure for opiate treatment which not only combines the drug and health dimensions, but also includes other dimensions such as social functioning, employment and criminality. The development of such measures help ensure the comparability between studies important for technical evaluations. All indices, however, involve measuring, valuing and weighting different components. An economic approach may differ from that taken by service providers or a medical audit approach. A situation could arise in which an economic evaluation would give a different ordering of treatment worth than one based on clinically derived measures.

Individual benefits, and those for the drinkers' family are, however, only part of the potential benefits from providing alcohol services. It could be that services do not improve individual outcomes, but do result in a saving of resources for the rest

of society. For example, detoxification may not be found to influence the long term drinking and health outcome of a client, but if the alternative is custodial care, then the provision of this service may be found to be more cost effective than the alternative. This suggests a need for economic evaluations which estimate the effects of service delivery on the future demands on health, social service, enforcement, employment, housing and other local, national and voluntary bodies.

Some general services for problem drinkers may not claim to have a therapeutic role, but provide information or advocacy for other welfare services. The multiplicity of outcomes of alcohol services has been implicitly recognised in the UK where funding for many non statutory provided services has come from health, local authorities, social security and other sources (Stockwell and Clement, 1989). Specific purchasers do face a problem in allocating and monitoring contracts with these multiple outcomes, and joint purchasing would seem to be necessary to ensure adequate service provision. However, purchasers from different bodies will have different priorities and objectives, and may not weigh the wider consequences of services in the same way. Similarly different providers may have different objectives than these joint purchasers. Economic evaluations do provide one method of making the weighting of multiple outcomes explicit, but they will only be one factor in the decision making process.

Any definitive list of benefits or costs will depend on the objective of the study, the alternative options considered, and whether there is a desire to make wider policy generalisations. Alcohol services, however, have a potentially wide range of effects and therefore to examine whether services are economically efficient it would be useful to examine as many items as practicably possible. A checklist of typical costs and benefits associated with an alcohol service are given in Table 1.

**Table 1. Checklist of Potential Costs and Benefits Associated With an Alcohol Service.**

**A. COSTS INCLUDED IN DIRECT PROVISION**

- . Capital
  - Land
  - Building
- . Running Costs
  - Paid Staff
  - Central Administration
  - Volunteers
  - Consumables and other costs

**B. OTHER PROVISION COSTS**

- . Use of other agency or community services
  - e.g. social workers
  - probation
  - GP, housing etc.

**C. COSTS TO THE INDIVIDUAL AND FAMILY UNDERTAKING THE SERVICE**

- . Out of pocket travelling and other expenses
- . Lost income
- . Intangible costs to individual and family of treatment and changing habits

**D. BENEFITS AND AVERTED COSTS FOR INDIVIDUAL AND FAMILY**

- Contribution to quantity and quality of life of
- . Immediate health benefits and reduced risk of future ill-health
- . Improved employment prospects and earnings
- . Social functioning improvements
- . Reduction in risk of arrests for drunkenness, drink driving, violence etc.
- . Other benefits of changed drinking habits, including increased welfare for family of reduced expenditure on alcohol

**E. BENEFITS (OR AVERTED COSTS) TO THIRD PARTIES**

- . Reduced future health care costs
- . Productivity and training gains for employers
- . Reduced criminal activity and criminal justice costs
- . Reduced social care, housing service demands etc.
- . Reduced accidents, fires etc.

Note: In actual studies there is a need to avoid double counting. For example, the benefits from increased productivity would need to be net of any gain in earnings to the individual from his improved state. Also it may be argued that the averted costs should be net of any loss of tax revenues from reduced drinking.

## Other issues in economic evaluations

While most of the costs of alcohol services, as outlined in Table 1, may fall in the current time period, some of the benefits could be spread over a long time period. It is important to take account of the differential timing of costs and benefits as, in general, individuals give a greater value to the present than the future. This is recognised in both financial and economic evaluations by discounting future costs and benefits to a present value. With health evaluations there is a current debate about whether health benefits such as life years or QALYs should be discounted (Parsonage and Neuburger, 1992). Discounting health benefits clearly disadvantages preventive measures and from a population perspective it has been argued that health benefits should not be discounted (Sheldon, 1992).

For this issue, and many other judgements that arise in undertaking an economic evaluation, there is not one correct answer. Many assumptions are involved and for some items, for example future health care costs, there may be a degree of uncertainty. Economic evaluations also depend on the study design. In particular, sufficient sample size and follow up period are required to get adequate estimates of both costs and outcomes of the alternative interventions. It is therefore important to test the robustness of any results by undertaking sensitivity analysis. On discounting, for example, it has been suggested that all studies indicate the results of not discounting health benefits (Parsonage and Neuburger, 1992).

A third issue is the importance of calculating marginal, or additional, costs and benefits as well as average figures. For example, it may be that two programmes

have similar final cost effectiveness results, but there would be a considerable difference in costs if the services were expanded. For example, one service may be operating at the capacity constraints of their building, and expansion to even one more client would require new room. The type of client accepted by a service could also affect marginal costs and benefits. Expanding a service to new clients, especially if they are not as socially stable as the existing clients, may have a large impact on both costs and expected benefits.

Most economic evaluations, after consideration of these issues, result in a range of cost benefit, cost effectiveness or cost utility measures. In some cases results will unequivocally favour one of the alternative options but this will not always be the case. As emphasised before such results will only be one input into the decision making process. It is important that any study results are robust, especially if policy makers are attempting to use published studies to guide their decisions. A number of checklists have been produced. These general points and the alcohol specific issues considered in this section will be used as a basis to evaluate existing empirical studies in the next two sections.

#### **CAN THE COSTS OF ALCOHOL TREATMENT BE OFFSET BY HEALTH CARE COSTS SAVINGS?**

Many health care procedures have indirect effects on health service use and costs other than those directly associated with the service. Some interventions, such as screening programmes, may lead to the identification of more individuals than require treatment and alcohol screening could have these effects. Some

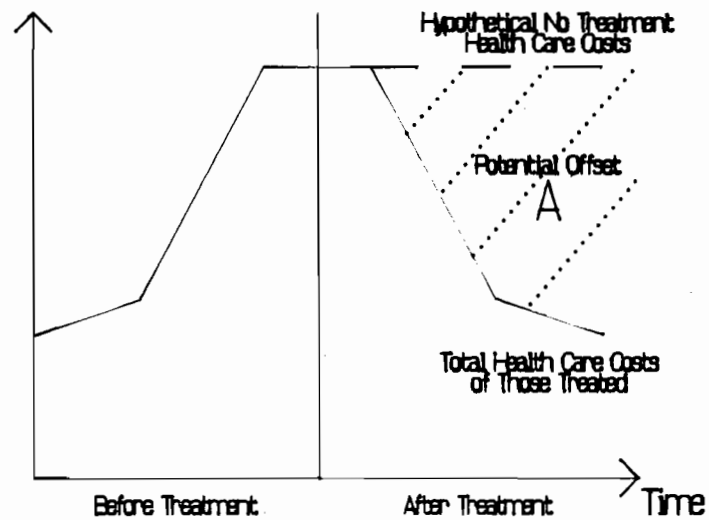
interventions result in a need for long term care, for example, anti-rejection drugs for transplant patients. Some have argued that alcohol dependence should be treated as a chronic condition, recognising that periods of relapse are common. Valliant (1988) drew an analogy with diabetes, where hospitalisation saves lives but does not alter the course of the disease. This view would suggest that a treatment intervention cannot be seen as a single event and there is a need in evaluation to consider the long term process of care and the associated costs and benefits. These are examples of additional costs associated with a specific intervention. For alcohol services, however, there have been a number of studies suggesting that an episode of alcohol treatment may reduce total health costs and that the costs of specialised services may therefore be offset.

A characteristic of alcohol users is their above average use of all health services. In US studies, those with severe alcohol problems and their families have been found to have total health care costs 2 to 3 times those of the average family (Holder, 1987) and Manning et al (1991) found that medical care costs were the largest item in their US study of the third party costs of heavy drinkers. In the UK, screening studies have indicated that up to 1 in 5 hospital admissions may be alcohol related (Barrison et al, 1982). There are a number of reasons why a specific alcohol intervention may reduce a wide range of health care use and costs for an individual and their family. First, alcohol treatment if successful will reduce the likelihood of a whole range of physical and psychological illness. Second, those with a drinking problem may be seeking help for the consequences of their drinking, but this is not recognised by the health professional or possibly the individual. The

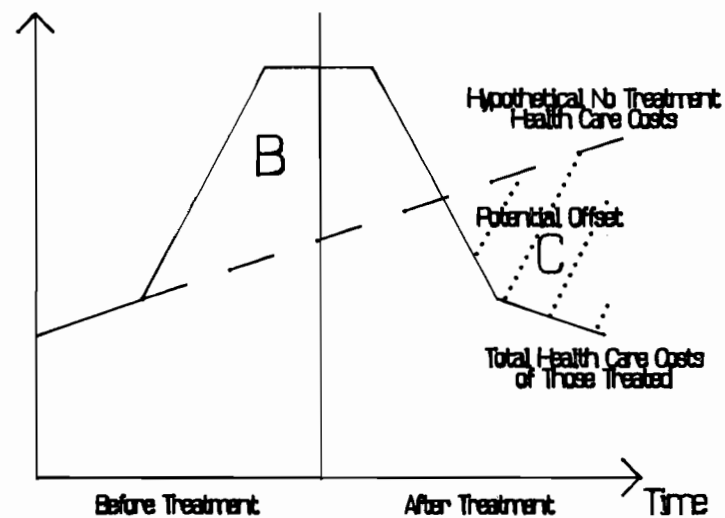


Figure 1  
Health Care Costs Before and After Treatment

a) Total Health Care Costs



b) Total Health Care Costs



identification of an appropriate intervention may reduce these other demands on the health services. The third possibility is that previously more costly and less effective interventions may be substituted for a specific alcohol treatment. Reasons for such substitution could be to avoid stigma, a lack of faith in, or knowledge of, services, or the non availability of services.

In Figure 1 two illustrative models of possible cost offset are shown. Total health care costs of those who receive treatment are expected to be on an increasing trend before treatment, spike around the time of treatment as shown in the figure, and after treatment gradually decline. In the first figure, it is hypothesised that health care costs of the untreated would still spike but then continue at the peak level. The cost offset would then be the shaded area A. In the second illustration the amount of cost offset is more uncertain. Health care costs of the untreated do not peak at the same high level as the treated but do continue at a higher rate than post treatment costs. Hence the cost offset would be B - C. There have been a number of studies of cost offset in the US with two major reviews, Jones and Vischi (1979) and Holder (1987). These reviews and more recent studies are examined and then implications for UK service delivery are considered. A summary of the results of these studies is shown in Table 2.

Twelve studies of alcoholism were reviewed by Jones and Vischi (1979) and large reductions in medical care utilisation, sick days or sickness or accident benefits paid were found in all of the studies. The reductions ranged from 26 to 69 per cent of the pre-treatment levels. The studies reviewed had a number of common methodological problems including inadequate comparisons, small numbers and a short, 12 month pre and post treatment, duration of study. The studies covered mainly middle class patients.

**Table 2 Summary of the Cost-Offset Studies**

<b>Study</b>	<b>Details</b>	<b>Population</b>	<b>Results</b>
Jones and Vischi (1979)	Review of 12 studies on the impact of alcohol treatment on medical utilisation	Mainly middle class	Reductions in medical utilisation ranging from 26% to 69% with a median of 40%
Holder (1987)	Review of further 12 studies, 6 controlled and 6 naturalistic	Mixed	In four studies post treatment costs converged to general population levels. In two studies evidence of net savings were found.
Reutzel et al (1987)	Study of total health care costs 6 month pre and 6 month post treatment (46 patients)	Medicaid recipients	31.6% decrease in non alcohol treatment costs compared to pre treatment levels and 16.3% average per client decrease in the total health care costs post treatment.
Booth et al (1990)	Data on hospital use (not costs), 3 years before and after treatment, 255 patients	Low socio-economic status, VA health care patients	Different sub groups found with high or low hospital use. 23 per cent of sample had the alcohol treatment as the only hospital episode in the 6 year time span. On average there is more hospital use after treatment than before.

Table 2 Continued ...

Study	Details	Population	Results
Blose and Holder (1991)	Data on treated severe problem drinkers by different age and sex groups were compared to similar groups drawn from the rest of the population	Health insurance enrollees of large manufacturing company. Data from 1974–1987.	No significant gender differences in health care costs after treatment. The two younger age groups (30 and under, 31–50) experienced falls in total health care costs after treatment. As long as 10 years before treatment, the treated group had health care costs more than twice as high as the rest of the population. Data indicated that health care costs return to age/gender norm for all groups after treatment. Those over 50 have a rising trend of costs for both treated and untreated groups.
Holder and Blose (1992)	Data on those receiving alcohol related treatment were compared to a group with severe alcohol related medical conditions but who received no specific alcohol treatment. Pre and post treatment levels were compared and a multivariate analysis of data undertaken.	As Blose and Holder (1991)	Total health care costs, including alcohol treatment, declined by 23 to 55 per cent from their highest pre treatment level. The health care costs were estimated to be 24% lower for the treated group compared to the untreated problem drinkers.

Holder (1987) reviewed 12 additional studies undertaken since 1979. These studies were, in general, of a larger size and a longer time span both before and after treatment. There was no study where a randomised control trial of groups with and without treatment had been used. Two types of study were distinguished: controlled studies; and naturalistic studies. Controlled studies involved a well defined patient group that was assigned to different treatments. Naturalistic studies involved examination of an existing database, such as the records of patients in a treatment programme, a firm or health insurance company. Holder concluded that an average untreated severely dependent drinker usually incurs general health care costs that are at least 100 per cent higher than those of the general population. The difference between untreated dependent drinkers and the general population increases over the time prior to treatment, being 130 per cent, 180 per cent and close to 300 per cent higher for the period 25 to 35, 13 to 24 and the last 12 months prior to treatment. Most studies Holder reviewed showed a statistically significant reduction of health care costs in the year following initial alcoholism treatment compared with the 12 months prior to treatment, with those with longer follow-ups generally showing further declines in health care costs.

In four of the studies reviewed by Holder it was found that post treatment medical costs converge to the level of a comparable group of non dependent drinkers. In two studies, the value of the cost offset was estimated. This exercise involved estimation of the level and trends of health care costs that the patient would have incurred in the absence of treatment. Both studies used statistical techniques to predict these values from the pretreatment data of those who did receive treatment.

Holder and Schachtman (1987), using both regression and Markov chain methods, estimated that, on conservative assumptions, the cost of alcoholism can be offset by reductions in other health care costs within 3 years of the start of the treatment. Neither of these studies attempted to discount the costs to a common present value.

Studies completed since Holder's review have questioned whether the size of effects translates to groups with lower socio-economic status. Clearly, in the US, economic wealth can be an important determining factor in health care use, but fewer (but not necessarily no) differences may be expected in the UK (O'Donnell and Propper, 1991). Luckey (1987) quoted results from two publicly funded programmes, one of Medicaid recipients and another of a veterans administrative patient population, where no reductions in post treatment health care costs were found. Other studies of these groups have found evidence of treatment costs being offset by a reduction in other health care expenditures. Reutzel et al (1987) found in Illinois expenditures for all services (including the alcoholism treatment) were over 16 per cent lower in the six months after the treatment compared to the six months before treatment. The study consisted, however, of only 46 clients. Another study (Booth, et al, 1990) of 255 patients drawn from predominately low socio-economic groups examined medical utilisation but not costs. The results suggest that there may be two distinct groups undergoing treatment, low users and high users of medical care. One third of the sample was never hospitalised for an alcohol related condition in the years prior to or after alcohol treatment, and 23 per cent experienced no hospitalisation other than the specific treatment. More frequent hospital care was

found to be significantly associated with higher levels of daily alcohol consumption and drinking duration. On average the frequency and total hospital length of stay for all alcohol related admissions increased yearly before treatment, peaked in the year after treatment, and then declined but not to the pre treatment levels. It should be noted that no data on costs and only information on hospital care were available for this study.

Other recent studies have used naturalistic data sets of employers' health insurance schemes. These studies have the advantage of long time period of data and very large numbers. Blose and Holder (1991) examined differences in health care utilisation for those undertaking alcohol treatment by age and sex groups. The data were taken from those who had long term employer based health insurance and hence the group would be on average much more financially secure than the participants of the Booth et al (1990) study. The general pattern of health care costs of the treated group was similar to that hypothesised in Figure 1 with a spike pattern around the time of treatment. There was little difference in the cost profiles between men and women, although the pattern of post treatment costs which began to rise 4 years after treatment was different than the hypothesised pattern in Figure 1. These patterns, however, concealed a strong age effect. The costs for those aged 51 and over were consistently above the younger age groups and whereas there was some evidence of total health care costs being on a declining trend after treatment for the young age groups, for the older group after the immediate post treatment fall in costs the trend showed a sizeable increasing trend. To consider the expected pattern of health care costs of particular

age/gender cohorts, a matched control group was drawn from the insurance records. The comparative analysis indicated that health care costs of the treated group were above the matched control at all times, but when age was taken into account there was evidence that the gap between treated and control group narrowed after treatment. Although the data period was insufficient to fully test the hypothesis, there was an indication that post treatment health care costs would return to the age/gender norm.

In another study Holder and Blose (1992) examined the health care costs of 2516 individuals with a specific treatment diagnosis (ICD-9 codes 291, 303 and 305.0), with 661 others identified with a chronic alcohol related medical problem (ICD-9 357.5, 425.5, 535.3, 571, 572.3) but who received no specific alcohol treatment. The data were again taken from a large company's insurance data covering 14 years. The data were analysed in two ways. The first involved an examination of pre and post treatment costs as in other studies. This indicated a two stage process to health care costs rising initially because of the alcohol treatment and follow-up care. The second stage occurs when alcohol services decrease and then total medical care costs declined to levels below that at initial treatment point. The untreated group had a similar "spike" pattern around their alcohol related diagnosis but much higher costs in the second stage (6 to 42 months after their non specialist treatment episodes) than their pre-treatment levels. The authors conclude that the overall health care costs of the treated dependent drinkers drop an estimated 23 to 55 per cent below the cost levels which exist prior to treatment.



A second analysis of the data was made using multivariate techniques. After controlling for pre treatment health status and age, the results suggest that the post treatment costs of treated alcoholics were 24 per cent lower than comparable costs for the untreated groups. Unfortunately there are no data on drinking levels and it is not possible therefore to consider an "untreated" group with other than the easily identified and serious alcohol related medical problems.

The American studies indicate that cost offset may occur, but not necessarily for all groups of problem drinkers nor may treatment costs be totally offset. Ethical problems will most probably always prevent a true randomised control trial of treated and untreated drinkers to give the true pattern of costs for the untreated group. Naturalistic studies have provided some useful insights into the possibility of offset. It is difficult to predict the potential for cost offset in the UK. One point is that specific treatments are generally less intensive, less likely to be inpatient based and therefore lower cost than the standard regime in the US. This would imply there are lower costs to offset. It is more difficult to predict variations in pre and post treatment health care costs in the UK, where access to medical care is more equitable but more strictly rationed. This information could be especially useful in the argument for the allocation for health care resources for alcohol. At present it is difficult and costly to trace the medical use of any individual within the NHS, although new information systems may make such research feasible in the future. It would be expensive to mount a special study of cost offset in the UK. However, cost offset is not the primary rationale for providing treatment but instead one of the potential indirect benefits. The

American studies do indicate, however, that it is important to consider changes in health care costs and to make some attempt to measure the changes in all health care costs as a result of receiving an alcohol specific intervention.

## ECONOMIC EVALUATIONS OF ALCOHOL TREATMENTS

A review of the literature yielded a number of studies which claimed to demonstrate cost effectiveness of different interventions, but only a limited number had undertaken a full economic evaluation. Most of the fuller studies, are like the cost-offset studies, based on American data. The available studies can be divided into four main groups. The first set of studies examine the question of whether treatment is an efficient use of resources and have used variants of cost benefit analysis. The remaining studies are of the cost effectiveness types and involve comparing different elements of alcohol interventions. Most studies have been mainly concerned with comparing different settings of treatments, especially the contrast between inpatient and outpatient care. In a recent American study (Holder et al, 1991) there has been an attempt to examine comparisons between different modes of treatment, for example, psychotherapy, social skills training, brief motivational counselling etc. The final area considered is the cost effectiveness of a wider range of services directed at the less severe drinkers, including prevention and screening for alcohol problems. Studies in this group are difficult to find, but some of the issues in the comparison of the cost effectiveness of these services compared to those directed at the severe problem drinker can be outlined.

**Table 3 Cost Benefit Studies**

Study	Details	Benefits	Costs	Results
Cicchinelli et al (1978)	Comparison of 5 cohorts of patients to a Mental Health Centre (2299 patients) Treatment was mixed outpatient and limited in patient care	Each patient assigned to 1 of 4 intake states and 1 of 5 outcome groups. Movements between intake and outcome given a value between -1 and +1 by experts. Weights in this matrix multiplied by \$10,000. Productivity gains estimated from pre-treatment income levels	Programme costs only	The 'output value' index taken as the productivity gains plus the 'value' of treatment improvement divided by the treatment cost. Overall average was £9.69 return for every dollar cost of the programme.
Rundell et al (1981)	Comparison of one programme (mainly low socio-economic status) with Oklahoma State wide data	Productivity gains; Health; Reductions in car accidents, arrests and criminal justice costs (measured from intake to 6 month follow-up, assumed to last 1 year)	Programme costs only	Net benefits for both chosen programme and State wide average. Benefit cost ratios of 4.4 : 1 for programme 2.4 : 1 for State average.
Lessard et al (1985)	190 participants in a treatment programme with data 6 months pre and post treatment	Changes in welfare payments, health care costs and criminal activities. Indirect benefits to the patient and family discussed.	Programme costs only	49 per cent pay back of treatment costs within 6 months

### **Is Alcohol Treatment Worthwhile?**

To address the question as to whether alcohol treatment results in greater benefits than costs requires all consequences of treatments, not just the cost offset, to be valued in monetary terms. The question therefore demands a cost benefit approach with a societal perspective.

Three studies were found which had attempted to address this question and their results are summarised in Table 3. Cicchinelli et al (1978) undertook an "output value" analysis of the effectiveness and efficiency of treating five cohorts of patients at one centre. Only direct treatment costs and the benefits to the patient were considered. The output value index consisted of the estimated response to treatment and the estimated gain in productivity divided by the resource cost of treatment. The response to treatment was calculated by assigning each patient to one of 4 categories of the initial impairment and to one of five groups indicating the response to treatment, from regressed to marked improvement. The weights of the resulting matrix were determined by health professionals with, for example, the change from severe impaired at admission to marked improvement after treatment being given the weight 1 and the change from slight impairment to slight improvement being given the weight of 0.23. To obtain the value of the improvement as a result of treatment, the weight for each individual was multiplied by \$10,000. No reason was given for this value, and this valuation and the weighting procedure both involve a number of assumptions being made.

Rundell et al (1981) undertook a more conventional and comprehensive cost benefit

of one programme compared to the state (Oklahoma) wide average. The perspective of the study was one of the national economy. Programme benefits were assessed in terms of health, productivity, automobile accidents and arrest and criminal justice costs. Benefits to the individual in terms of the value to them of improvements in their quality of life were not calculated. Detail about the costs of each programme was limited with estimates based on reimbursement of fees and the budget for the treatment centre. Costs and benefits were valued in dollars and discounted to give an estimate of present value. Favourable cost benefit ratios were found both for the particular programme (4.4:1) and the average for state wide services (2.4:1). Productivity gains and decreased health care costs accounted for most of the benefits. It should be noted that productivity gains will favour programmes which include the highest earners and this may be felt inequitable.

Lessard et al (1985) also estimated the costs and benefits of alcoholism treatment from a wider economic perspective. The study was not as rigorous in estimating the benefits as the Rundell et al study and the authors suggest that they only provide a "rough" estimate. Calculations were made of the value of the changes of number of patients receiving welfare payments, reductions in detoxification treatments, medical and psychiatric treatment, including injuries and reductions in criminal activities. More data were obtained on the employment status of the 190 participants in the 6 months prior to and after treatment, but no attempt was made to measure productivity gains. Reduction in social security payments in themselves represent changes in transfer payments, i.e. from one group in society to another, and such transfers do not reflect any "gain" in welfare to society. It may,

however, partially reflect the increase in the numbers employed and hence productivity gains before and after treatment. The conclusions were that, even on a conservative costing basis, there was a 49 per cent pay back of treatment costs within six months. The authors discuss the indirect benefits of treatment for family members of the patient and the benefits in terms of quality of life to the patient themselves: factors which were not considered in the Rundell et al (1981) study.

The data for measuring benefits in each of these studies were of the before and after treatment type. This raises the same problem as encountered in the cost offset studies in that it is not possible from the study design to determine whether it is the treatment alone which is responsible for the measured benefits.

#### **Cost Effectiveness of Different Settings for Alcohol Services**

Results from clinical studies, many using a randomised control approach, indicate that neither day care nor outpatient care results in a difference in drinking outcomes, compared to inpatient care (see, for example, Miller and Hester, 1986). As inpatient care is financially more costly than other settings, it has then be claimed that inpatient care is not cost effective for the majority of problem drinkers. There have been few detailed studies which have attempted a careful economic evaluation and the results of these are given in Table 4.

Longabaugh et al (1983) considered the cost effectiveness of day to inpatient care. In this study both sets of patients received the same package of care and the difference in costs to the provider come only from differences in settings. The

**Table 4 Cost Effectiveness Studies of Different Settings**

<b>Study</b>	<b>Details</b>	<b>Benefits/Outcome Measured</b>	<b>Costs</b>	<b>Results</b>
Longabaugh et al (1983)	Patients* randomly assigned to inpatient (60) or day patient (114) care after completed detoxification. Patients and significant others subjected to 6 month follow-up (* excluded brain damaged, those with severe psychosis or suicide risks)	A variety of outcome measures (none valued):- QF index and absent days; Employment, absences and income; Residential status and stability; Psychological well-being and distress.	Total costs of treatment including detoxification, rehospitisation and after care treatment (excludes any medical cost from other establishments)	No significant differences in benefits apart from psychological wellbeing and interpersonal functioning which showed greater improvement for the day care group. Inpatient care \$4360 compared to \$2700 for day patient care
McCrary et al (1986)	115 patients 1 year follow-up of Longabaugh et al (1983) study	As above	In addition to above-income lost while in treatment and child care cost estimated	Cost-effectiveness indicators estimated were: abstinent days per \$100 treatment costs; total treatment costs per abstinent subject; total treatment costs per abstinent or moderate drinking subject. All indices favourable to day patient care

Continued ...

Table 4 Continued ...

Study	Details	Benefits/Outcome Measured	Costs	Results
Hayashida et al (1989)	164 patients at a VA hospital with mild to moderate alcohol withdrawal symptoms randomly assigned to inpatient or outpatient detoxification. 6 month follow-up evaluation	Addiction Severity Index which includes medical, alcohol, drug, employment, legal, social and psychological questions administered at intake and follow-up. SSA for withdrawal symptoms	Average and marginal costs for programme. Direct costs to patient of transportation and opportunity costs of time in treatment	A higher proportion of the inpatient group completed the programme but there were no significant differences in the outcome measures. Inpatient care cost 9 to 20 times more than outpatient care
34 Potamianos et al (1986)	115 patients randomly assigned to a community based centre of standard hospital or outpatient services in the UK. 12 month follow-up	Changes in drinking. Economic questionnaire about the use of health services, sickness absences, employment status and personal costs of drinking	Costs of treatment	Costs of community treatment of £110 were more than offset by reduced health service use (£193 lower for community treatment compared to normal treatment group).



costs to the patient were not measured, but this would differ as day patients would have, for example, larger travelling expenses. A wide range of outcome indicators were used, covering employment and job stability, residential stability, interpersonal functioning and psychological well being and distress. Measurement of these outcomes was taken as the change from intake to six months after treatment. There were few differences in these outcome measures, although both interpersonal functioning and individual well-being were higher among the day patient group.

In this case it was not necessary to value these improvements because day care was less costly than inpatient care. However, if the inpatient group had better outcomes it would be necessary to value these improvements. For example, Walsh et al (1991) found that inpatient treatment resulted in considerably higher numbers who abstained completely from drinking than others randomly assigned to Alcoholics Anonymous or given a choice of treatment. No differences between the groups were found in measures of job performance. This American study was not an economic evaluation and therefore no attempt was made to weigh these improvements against any additional costs.

In a follow-up study to Longabaugh et al (1983) results for the inpatient and day patient group were examined one year after treatment, McCrady et al (1986). This follow-up study included some costs to the patient such as child care and indirect costs such as missed work resulting from the initial treatment and any subsequent hospitalisation. Several cost effectiveness indicators were calculated, including cost per abstinent day, cost per change in alcohol consumption, and cost per abstinent

or moderate drinking subject. This later index was calculated at \$9,666 for the partial hospital group and \$13,222 for the inpatient group. In 1986 these are quite high figures in UK terms for both groups.

Hayashida et al (1989) examined the cost effectiveness of inpatient and outpatient detoxification services in another US study. The patients were male and of low socio-economic status. The patients had all been assessed to be in need of detoxification but without immediate serious medical, psychiatric or withdrawal problems. Patients were randomly assigned to inpatient or outpatient care. Average and marginal costs of both programmes were made and these costs included the direct costs to the patient and the indirect costs to the hospital of participants receiving other treatment. No significant differences between groups with respect to drinking status or other outcome measures were found at 6 months. In this study the total costs of inpatient care, including the opportunity cost of lost work time, were 9 to 20 times more than outpatient detoxification.

Most of the programmes evaluated in the UK have been medically based. Also many evaluations have not been confined to comparing the same programme across settings, but also involve a comparison of different type of treatment as well as a different setting. Potamianos et al (1986) considered the outcomes and costs of services from a community based centre and a conventional hospital management of treatment for severe problem drinkers. The 151 participants were randomly allocated to the community day centre, or to the standard hospital inpatient and outpatient services. A wide range of drinking outcome measures were obtained and

an economic questionnaire was administered at recruitment, 3, 6 and 12 months. The questionnaire included questions on the use of all services over the last 3/6 months, employment status, sickness absences and personal costs attributable to drinking. Hence this study had more information for economic evaluation than is usual. Few details of this data were given in the published article although the discussion suggests that there were no differences in outcome apart from the stated alcohol consumption. Patients of the community based centre reduced alcohol consumption by 55 per cent compared to 37 per cent of the hospital group. Lower average medical costs between the two groups over the follow up year were found and the difference of £193 is used to suggest that the cost of community based service at £110 per patient is offset. This calculation does not seem particularly useful and it would have been more interesting to compare all the costs and benefits from the two programmes.

Another alternative setting to specialist hospital care is the General Practitioner. Drummond et al (1990) reports on a trial where problem drinkers who were referred to a specialist clinic were, after screening, randomly allocated to either the GP or a specialist clinic treatment group. The findings of this study indicate that the treatment provided by the GPs was at least as effective as that from a specialist clinic even amongst the most severely dependent subjects.

#### **Different treatment modes**

Alcohol interventions differ not only in their setting but also their therapeutic basis. Reviews of treatment indicate that evidence of the effectiveness of many

approaches is not conclusive (Saunders, 1989, Turner, 1990, Ritson, 1992). Holder et al (1991) attempted to combine evidence on effectiveness from published studies for 33 different modes of treatment with data on average costs of those services in the US. The authors considered this procedure would give a first approximation to cost effectiveness. The results of their analysis was that the total cost of care was negatively related to effectiveness ie. those with a lower cost were more likely to be those with good evidence of effectiveness. As the authors themselves state these results have to be interpreted with care because there are limitations in the measurement of both benefits and costs.

Effectiveness of treatment in the Holder et al study was based on published "controlled" trials, including those with comparisons groups. Only drinking outcome measures were considered and, as explained above, these may not be correlated perfectly with other individual or social outcomes from alcohol interventions. No attempt was made to put a value to the drinking outcome measures. The overall measure of effectiveness was calculated by assessing the number of studies with positive or negative outcomes for that mode compared to an alternative. One difficulty of this procedure is that the probability of a positive or negative result will depend on the alternative. A weighting system was used, however, to counter the problem that positive findings are much less likely to be obtained than negative ones. The modes which were classified as having good evidence of effect using this method were social skills training, self control training, brief motivational counselling, behavioural marital therapy, stress management training and a community reinforcement approach. Fair evidence of effect was found for aversion therapy,

covert sensitization, behavioural contracting, oral disulfiram, psychotropic medication, anti depressant and disulfiram implant. These findings are in general accordance with other reviews of treatment outcome (Saunders, 1989; Turner, 1990; Ritson, 1992)

For the cost calculations the authors used clinical experts to give data on the minimum number of recommended treatment units for each mode with the least expensive provider and setting. These costs are clearly on a financial basis, covering only the providers' charges, and no costs are calculated for the individual. They may also seem less relevant to the UK than the outcome review data. Also, data were not based on actual practice and, with such a diverse group as problem drinkers, the costs may be very variable across individuals. It would therefore be useful to have costs from actual treatment trials. These first approximations are however useful in highlighting a more limited range of modes that could be examined in more depth by fuller economic analysis.

### **Brief interventions and the prevention policies**

Brief interventions had been advocated for those with less severe drinking problems. A brief or early intervention among those already drinking above recommended levels, may help limit the development of more serious problems, both for the drinker and minimise alcohol related problems for the rest of society. This could be then seen as a secondary prevention activity and one economic question would be whether resources should be allocated to such responses in order to avoid both future higher specialist treatment costs and the wider social costs of severe problem

drinking. There have been a number of studies examining the use of brief interventions in a number of different settings (Anderson, 1990). Different types of drinkers have also been considered in this study. For example, Chick et al (1988) compared advice with extended treatment in a randomised control trial of attenders at an alcohol problems clinic in Edinburgh. The results of this study did suggest that there was some improvement from extended treatment and a full economic evaluation would have been a useful addition to this study.

More recently there has been a more extensive cross national study of brief interventions in primary care organised by the World Health Organisation (Babor and Grant, 1992). The trial took place in ten countries, including a project in Wales. The common design of the study was to compare a control group, who received a general 20 minutes health interview, a simple advice group and a group receiving brief counselling. A six month evaluation included drinking outcomes, measures of depression, and self efficacy of drinking in high risk situations. The pooled results indicated that male patients exposed to the interventions reported approximately 25 per cent less daily alcohol consumption than those in the control group and that one in five responded favourably to the brief intervention. For females a similar pattern emerged but the differences were not statistically significant. In general, five minutes of simple advice was found to be as effective as brief counselling and up to three follow-up visits.

Brief interventions are clearly of low cost per patient for the primary care agency but implementing brief interventions for those drinking above recommended limits

can have large resource consequences. The groups to which these interventions are directed at are large. In 1990, 28 per cent of men and 11 per cent of women drank above the recommended limits (DoH, 1992). Implementing this policy would also require screening for alcohol consumption and training workers to undertake these interventions.

Screening and identification of drinkers can be undertaken in a number of settings and a number of instruments have been proposed for this task (Anderson, 1990). Tolley and Rowland (1991) examined the cost effectiveness of different methods of screening in a general hospital. They calculated a range of cost effectiveness indicators for doctors, nurses and a specialist worker. In general, nurses were a more cost effective screening option than doctors and the specialist worker was the most effective option, but at a higher cost. This study illustrates the range of cost effectiveness indicators than can be calculated for any study and their relationship with different policy objectives.

Willingness of medical and other professional workers to screen for alcohol problems and administer brief interventions will affect calculations of cost effectiveness. For example, greater willingness may affect the opportunistic screening rates and giving of advice. Opportunistic screening is thought to be more cost effective than special clinics both because of cost and because those most needing advice or treatment may be the least likely to re-attend a special clinic. Anderson (1988), in a survey of GP attitudes to working with problem drinkers, found that whereas 93 per cent of doctors felt they had a legitimate right to work with drinkers, only

44 per cent felt capable of doing so and only 39 per cent were motivated to do so. Supporting services and training for primary care workers is important but also has resource implications.

One policy initiative designed to give advice and training to primary care workers and to provide a link with specialist agencies was the establishment of Community Alcohol Teams. In practice, the training work was not given high priority as the teams were put under pressure to undertake clinical work. This clinical work was found to be in addition to, rather than a substitute for, existing services. This initiative does illustrate some of the difficulties facing specialist workers attempting to re-orientate services towards secondary prevention when there is excess demand for existing treatment services.

It is outside the scope of this paper to consider in depth the economics of general health promotion, harm minimisation and prevention programmes. It can be expected, as with treatments, that some but not all will be cost effective. The costs of prevention activity are not always minor as they have to cover a wider group of the population. Benefits are difficult to measure, being uncertain and capable of occurring a long time in the future. For example, teaching young people to drink sensibly may prevent liver cirrhoses some 30 years later. In other areas prevention has not always be found to be more cost effective than treatment, but this has been in areas where effective treatments are available (Russell, 1986). There are a wide range of alternative policies available to help prevent alcohol problems and many of these are of low cost (Hodgson, 1989). Initiatives such as



the *Health of the Nation* (DoH, 1992) may be useful in making both health and other authorities consider these alternatives, but there will be a large number of problem drinkers who require other services for some time.

## CONCLUSIONS

The evidence from both clinical and economic evaluations suggests that, for a majority of problem drinkers, low cost interventions may be as effective as more expensive treatments (Hodgson, 1989). In the UK there has been a much quicker response to research findings on the effectiveness of intensive inpatient treatments than in the US. This occurred within specialist Alcoholism Treatment Units with greater provision of day and inpatient services (Ettore, 1985, 1988) and with the development of community voluntary based services and some statutory provision (Stockwell and Clement, 1989). Private facilities have, in contrast, tended to continue to offer mainly inpatient treatment. The coverage of services is uneven, and consequently purchasers may be faced with only a limited choice of providers. This may limit the possibility of matching interventions to different types of drinkers.

The information to guide purchasers even where choices exist is limited. For example, the cost differences between and within different statutory, voluntary and private provision remain largely unexplored. Of the few figures available, it has been estimated that private care was on average 7 times more expensive per week than hostel places provided by a local Council on Alcohol (Stockwell and Clement, 1989). Non residential services have even lower financial costs per client. Paton

(1992) quotes a small alcohol agency which had contact with 200-300 problem drinkers a year on a budget of only £24,000.

Low financial cost per person does not imply that services are cost effective. There is a danger of misinterpretation of results on effectiveness when the full range of economic data, as outlined in Table 1, have not been measured in most UK clinical evaluation studies. Also, while low cost interventions may be adequate for the majority, certain groups may benefit from more intensive treatments, for example the "failures of advice" in the Chick et al (1988) and Orford et al (1976) studies. Matching clients to interventions is likely to change the outcomes of treatments (Institute of Medicine, 1990, Miller, 1992). Certain groups including the homeless, those with a history of violence, brain damaged or with chronic psychological morbidity are likely to need special provision. Certain acute problems may also require more intensive care including those with severe withdrawal symptoms, poly drug use or suicidal or other self harm tendencies. The wider social costs of those with severe medical and other problems may suggest well matched interventions could be cost beneficial.

One important aspect that has not been considered in many studies is the impact of both costs and expected benefits on individual behaviour. Treatment will not be found to be beneficial if patients do not present to services with their problems, attend for specialist services, drop out of treatments or fail to comply with therapies. Hidden costs may affect these aspects of behaviour. One important factor is accessability and there may be a trade-off between offering specialist

services in cost efficient centres of excellence and the accessibility of these services. Flexibility of service provision may also be important if waiting time affects attendance (Rees, 1986a) There have been few studies of what clients expect of treatment but there may be many misconceptions (Rees, 1986b, Rees and Stone, 1984). Problem drinkers in seeking help are likely to demand and use a range of different services (Allan, 1989).

It has been argued in this paper that economic evaluations could be usefully used to examine treatment alternatives and to aid policy choices. Many methodological problems remain, however, in designing both clinical and economic evaluations. While randomised controlled trials can be used to consider alternative policies, ethical considerations will generally prevent the consideration of a no treatment group. It will therefore be difficult to isolate the role of any one intervention from other factors such as spontaneous remission and the self selection problem of those seeking treatment. Large numbers and long follow-up periods are needed to accurately measure the full range of outcomes given the large differences between individual problem drinkers. There are also many alternative interventions and policy questions that could be addressed. Research itself, however, consumes resources and it is therefore important that research projects are not only well selected but designed so that the results have general relevance.

Policy reforms may aid information generation particularly financial cost data through the contract process. It is also likely that both purchasers and providers will have greater incentives to collect outcome data. The economic framework

described in this paper gives guidance on the indicators of costs and outcomes which could be monitored. Without this framework, better routine data and economic evaluation studies decision making could continue to be based on inadequate and in some cases misleading information.

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