

# **EFFECTIVE AND COST-EFFECTIVE MEASURES TO REDUCE ALCOHOL MISUSE IN SCOTLAND: AN UPDATE**

**Scottish Executive note:** this update of the literature review follows the publication of the original report, 'Effective and cost-effective measures to reduce alcohol misuse in Scotland: a literature review' (2001). This report is available at the following web address:

<http://www.scotland.gov.uk/health/alcoholproblems/docs/lire-00.asp>

# **EFFECTIVE AND COST-EFFECTIVE MEASURES TO REDUCE ALCOHOL MISUSE IN SCOTLAND: AN UPDATE TO THE LITERATURE REVIEW**

Anne Ludbrook  
Health Economics Research Unit, University of Aberdeen  
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## **EXECUTIVE SUMMARY**

### **AIM OF THE STUDY**

0.1 The aim of this study is to update the review of evidence on the effectiveness and cost-effectiveness of interventions aimed at reducing alcohol misuse, published in 2002, and to identify any new findings in this literature.

### **METHODS**

0.2 As in the original review, this update is based on reviews of effectiveness and individual economic evaluation studies. This reflects the relative size of the two types of literature. The search strategies and databases used replicated the searches carried out for the original review. (See Ludbrook et al 2002 pp11-12 and pp15-16). Databases were searched from 2000 in order to overlap the period of the previous review.

0.3 The quality of the effectiveness reviews and the economic evaluation studies was assessed using the same criteria as the original review (see Ludbrook et al p12 and p16). All economic evaluations have been included, even if they are incomplete in their coverage of costs or benefits. As with the previous review, there are very few good quality economic evaluations.

### **EFFECTIVENESS REVIEW - MAIN FINDINGS**

0.4 There are seven broad categories of interventions. Most of the studies reviewed for this update confirmed previous findings, with few new areas covered. The main findings are summarised below by type of intervention.

#### **Policy and legislative interventions**

0.5 There is additional evidence that fiscal policy (taxation) is effective in reducing total alcohol consumption and alcohol related problems. The variation in effect size may reflect the impact of other barriers to access; i.e. price increases have more impact where other restrictions on the availability of alcohol are fewest. Although previous evidence suggested that the alcohol consumption of the heaviest drinkers was not responsive to price increases, other studies show reductions in alcohol related problems for this group. The evidence relating to under-age and youth drinking was reported previously to be unclear but studies may have failed to take account of the true prices faced by these groups.

0.6 The effectiveness of legislation to reduce drink driving through lower permitted blood alcohol levels for younger drivers and inexperienced drivers and reductions in permitted alcohol levels for all drivers is confirmed by more recent reviews.

0.7 Evidence relating to licensing controls remains mixed. There is further evidence from the US that raising the legal drinking age to 21 has reduced alcohol related crashes and injuries and may reduce consumption. However, these results may not transfer to a UK setting because of different attitudes to drinking amongst young people in the UK.

0.8 There is still no clear evidence relating advertising and alcohol consumption. Advertising content may shape attitudes to alcohol, particularly for young people and studies are considering the effect of new approaches, such as Internet marketing.

### **Enforcement**

0.9 There is additional evidence to support the effectiveness of random breath testing and selective breath testing. Small studies have found server training to be effective but most of the studies involve volunteer participants.

### **Prevention**

0.10 There is still little evidence that school-based interventions have lasting effects on behaviour. Interactive delivery, parental or community involvement and peer involvement are more likely to be successful. Most studies relate to substance abuse prevention rather than alcohol alone.

0.11 One review suggests some effect on behaviour for mass media campaigns targeted at youth. Community prevention programmes are generally effective but may be focussed on drink-related problems rather than alcohol consumption. Warning labels have had little effect on behaviour in the US.

### **Screening and detection**

0.12 One review confirms the effectiveness of AUDIT as a screening tool. One small study has evaluated a short screening method for use in A&E departments.

### **Brief interventions**

0.13 There is additional support for the effectiveness of brief interventions. One study shows the effects being sustained over 4 years; a second study shows no difference by 10 years due to a reduction in drinking by controls.

### **Detoxification**

0.14 No additional studies were identified.

### **Relapse prevention**

0.15 More recent reviews continue to show the effectiveness of psychosocial interventions and pharmacological treatments as adjuncts to psychosocial interventions. No difference in effectiveness for different psychosocial interventions has been demonstrated. Direct

comparisons of Naltrexone and Acamprosate are difficult as studies have different target outcomes and lengths of follow up.

## **COST-EFFECTIVENESS REVIEW - MAIN FINDINGS**

### **Policy and legislative interventions**

0.16 One US study modelling the effect of lower blood alcohol levels for young and inexperienced drivers shows a benefit:cost ratio of 11:1.

### **Enforcement**

0.17 Additional studies confirm that community sobriety checkpoints using random breath testing or selective breath testing are cost-effective. Studies are from the US, Australia and The Netherlands and all show benefits in excess of costs; the smallest ratio of benefit to cost is from The Netherlands.

### **Prevention**

0.18 Family focussed adolescent substance-use prevention programmes have been shown to be cost-effective in the US. Benefit:cost ratios for two programmes were 9.6:1 and 5.85:1

### **Screening and detection**

0.19 One UK study estimated the cost of FAST screening in an A&E department to be £1,669 per annum for 50,000 patients.

### **Brief interventions**

0.20 Further economic studies show brief interventions to be relatively cost-effective. At 4 years, the benefit:cost ration in Project TrEAT was 39:1. Other studies have demonstrated net resource savings. One study that did not rely on volunteer clinics or clinicians to form the intervention and control groups has found no significant difference in resource use.

### **Detoxification**

0.21 One study of 4 centres in France provides information on costs and outcomes; the highest cost centre was also the most effective but these results need to be interpreted with caution.

## **Relapse prevention**

0.22 Further studies have modelled the cost-effectiveness of Acamprosate. A US study demonstrated a reduction in costs from integrating general medical care with substance abuse treatment for patients with substance abuse related medical conditions. A number of US studies have compared inpatient and day patient care but for substance abuse in general and the results may not be relevant to alcohol misuse. Modelling of results for Scotland shows net savings for psychosocial interventions and for Acamprosate as an adjunct. Naltrexone had higher costs, on average, but wide confidence intervals mean that this result was not significantly different from the result for Acamprosate.

## **Other issues**

0.23 Cross cutting reviews have looked at drinking contexts and environment for teenagers and barriers to care for women.

## **CONCLUSIONS**

### **Summary of available evidence**

0.24 The main findings from the review of the literature on effectiveness and cost-effectiveness are summarised in table 0.1. In terms of the effectiveness review, there is a strong and relevant evidence base to show that:

- the use of price increases, via taxation, and brief interventions will reduce the number of problem drinkers;
- effective screening tools to detect problem drinkers are available (CAGE and AUDIT); and
- detoxification services and relapse prevention, through appropriate psychosocial and pharmacological treatments, are effective.

0.25 The cost-effectiveness review found evidence to support the cost-effectiveness of:

- brief interventions;
- home and outpatient detoxification;
- outpatient treatment for relapse prevention; and
- the use of psychosocial interventions and Acamprosate as an adjunct treatment in relapse prevention.

### **Quality, coverage and relevance of the evidence**

0.26 The quality of the effectiveness reviews and the underlying primary studies is variable. The evidence base of economic studies is weak. The best evidence of effectiveness, in terms of both quality and coverage, relates to brief interventions and relapse prevention. There are a number of economic studies in these areas, of reasonable quality, but of limited relevance to the UK. Prevention, particularly in schools, has been widely researched but the poor quality of many of the studies means that the evidence base remains weak. Policy evaluation is not of high quality and particularly difficult to relate to the UK.



## RECOMMENDATIONS

0.27 The previous report made the following **recommendations**:

### Population measures

- the introduction of a brief intervention programme where this is not already provided; and
- the development of monitoring arrangements to assess the impact of these interventions.

### Treatment measures

- improved access to treatment and relapse prevention; and
- the use of cost-effective alternatives, such as home detoxification, where appropriate.

### Research measures

- the prioritisation of policy evaluation and prevention as the areas requiring most development of the evidence base;
- better co-ordination of research effort with resources concentrated on fewer larger studies with longer term follow up;
- better knowledge management in terms of access to relevant research results;
- the fostering of an evaluation culture amongst those responsible for delivering services, focussed on outcomes and the monitoring of effectiveness; and
- guidelines for evaluation to assist in this process.

These recommendations are unchanged as a result of the update to the review. In addition, **it is recommended that**:

- more detailed consideration be given to the evidence relating to community action and the potential for community based programmes to prevent alcohol related problems.

**Table 0.1 Summary of Findings**

	<b>Effectiveness evidence supports</b>	<b>Cost-effectiveness evidence supports</b>	<b>Comments</b>
<b>Policy and legislation</b>	<b>Price increases via taxation</b>		<i>Additional evidence relating to effect on heavy drinkers and youth.</i>
	<b>Lower permitted blood alcohol levels; raising legal age for drinking; lower outlet density</b>	<i>Lower blood alcohol levels for young and inexperienced drivers</i>	Evidence not from UK
<b>Enforcement</b>	<b>Random and selective breath testing of drivers</b>	<b>Random and selective breath testing of drivers</b>	Studies from US, Australia and The Netherlands. Cost data may not apply to the UK.
		Server training programme	US study implies cost data may not apply.
<b>Prevention</b>	No convincing effects have been demonstrated on drinking behaviour.	<i>Family focussed adolescent substance-use prevention</i>	Evidence of effect on knowledge and attitudes from mass media campaigns. Weak evidence of effect on knowledge from school-based interventions.
	<i>Community action can reduce drink related problems</i>	Thiamine supplementation of full strength beer to prevent Wernicke-Korsakoff syndrome	Australian study
<b>Screening and detection</b>	CAGE and AUDIT as screening tools for general populations	<i>FAST screening in A&amp;E</i>	<i>Small UK study. Costs from one centre.</i>
		Use of specialist workers for screening in a general hospital setting	UK study. Nursing staff were less cost-effective but may be used more flexibly.
<b>Brief interventions</b>	<b>Brief interventions in a range of research settings</b>	<b>Brief interventions</b>	No cost data from UK studies implies cost-offsets may not be high. <i>Effect sustained to 4 years.</i>
<b>Detoxification</b>	Benzodiazepines as first choice therapy		
		Home and outpatient detoxification	
<b>Relapse prevention</b>	<b>Psychosocial interventions</b>	<i>Psychosocial interventions</i>	<i>Model using Scottish data</i>
		Outpatient treatment	
	<b>Naltrexone and Acamprosate as adjunct treatments</b>	<b>Acamprosate as an adjunct treatment</b>	Cost data from Belgium and Germany but results confirmed when modelled with UK and Scottish data.
		<i>Naltrexone not significantly different from Acamprosate</i>	<i>Model using Scottish data</i>

Note: Results from previous review confirmed by additional evidence appear in **bold type**. Results from previous review for which no additional information was found appear in plain type. New information appears in *italics*.

## SECTION ONE

## INTRODUCTION

### SUMMARY

This section:

- explains the background to this update of a previous literature review;
- describes the aims of the review; and
- sets out the structure for the rest of the report.

### BACKGROUND

1.1 In 2001, the Scottish Advisory Committee on Alcohol Misuse (SACAM) commissioned a report to provide information on the evidence available about the effectiveness and cost-effectiveness of alternative measures to reduce alcohol misuse (Ludbrook et al 2002). This report provides an update on the literature review.

### AIMS

1.2 The aim of this study was to update the review of evidence on the effectiveness and cost-effectiveness of interventions aimed at reducing alcohol misuse and to identify any new findings in this literature.

### STRUCTURE OF THE REPORT

1.3 The report follows broadly the same structure as the original review. A brief description of methods is provided in Chapter 2 (and further details can be found in Ludbrook et al 2002 chapters 2 and 3). The main findings of the review of more recent literature are then reported by type of intervention in sections 3 - 9:

Section 3	Policy and Legislation
Section 4	Enforcement
Section 5	Prevention
Section 6	Screening and Detection
Section 7	Brief Interventions
Section 8	Detoxification
Section 9	Relapse Prevention

Definitions of the intervention categories are given in Ludbrook et al 2002 p10

Section 10 of the report presents further results from reviews that dealt with particular population groups. Finally, section 11 summarises the main findings and makes recommendations.

## **SECTION TWO            METHODS**

### **SUMMARY**

This section concerns the methods used in updating the literature review. It covers:

- issues concerning the search strategy and quality assessment;
- some of the relevant statistical methods; and
- the interpretation of cost-effectiveness studies.

### **INTRODUCTION**

2.1     As in the original review, this update is based on reviews of effectiveness and individual economic evaluation studies. This reflects the relative size of the two types of literature.

### **METHODS**

#### **Search Strategy**

2.2     The search strategies and databases used replicated the searches carried out for the original review. (See Ludbrook et al 2002 pp11-12 and pp15-16). Databases were searched from 2000 in order to overlap the period of the previous review. This would identify any references that might have been missed through late entry into the databases. Studies were included if they were effectiveness reviews of specific interventions or economic evaluations of interventions and in English. In addition, some studies that did not meet the inclusion criteria were retained if they related to areas of interest where no reviews had been identified. The time-scale of the study did not permit further hand searching or comprehensive follow up of references from the retrieved literature.

#### **Quality assessment**

2.3     The quality of the effectiveness reviews and the economic evaluation studies was assessed using the same criteria as the original review (see Ludbrook et al p12 and p16).

#### **Statistical methods used within reviews**

2.4     The reviews in this report include qualitative summaries of literature, descriptions of results that have been found in the literature and statistical summaries of the findings, using meta-analysis. Some studies report results in terms of effect size (measured as the difference between the intervention and control group means, divided by the pooled standard deviation). This is a valid method for determining whether the intervention has had a statistically significant

impact. However, it is not always possible to provide a meaningful interpretation of the effect size without reference to the original study data. Where reviews have carried out a quantitative analysis of such studies, the pooled results are reported in terms of the weighted mean effect size; each effect size is weighted by the inverse of its variance. This process gives greater weight to larger samples with more precise results.

2.5 Study results can be more easily understood when the results have been reported in terms of the change in the outcome variable of interest; for example, the reduction in units of alcohol consumed or the increase in abstinence rates. Another method of reporting results is the odds ratio, which is the likelihood of observing an outcome for the intervention group compared with the comparison group. An odds ratio of 1 reflects no difference between the groups. An odds ratio of 2 indicates the outcome is twice as likely.

2.6 The statistical significance of the findings refers to the possibility that differences in the intervention and comparison groups are observed by chance. A result is referred to as being statistically significant when the probability of the result occurring by chance falls below some threshold, usually 5%. Alternatively, this information can be presented in terms of a confidence interval (CI), usually 95%. This gives a range around the estimated value within which the true value is expected to lie. There is only a 5% chance that the true value lies outside a 95% CI.

## **Cost-effectiveness**

2.7 Economic evaluation involves building upon effectiveness information to assess both the costs of delivering the different policies or interventions and also assessing a wide range of consequences. Local conditions can influence the value of costs and consequences, especially between countries, and this should be taken into account when considering the relevance of findings to Scotland.

2.8 The application of economic evaluation techniques involves making a number of assumptions and, generally, individual studies undertake a range of sensitivity analysis to test the robustness of their findings to changes in these assumptions. Synthesising evidence on cost-effectiveness is not as straightforward as for effectiveness reviews nor are there well-developed techniques. There do exist, however, a number of checklists to assess the quality of individual studies.

2.9 As with the previous review, there are very few good quality economic evaluations. Many studies have omitted major costs or consequences. The evidence that can be drawn from such studies is, therefore, of a very different quality from that which can be taken from a well-conducted systematic review. In general, the lessons drawn illustrate some of the issues that will impact on cost-effectiveness rather than lead to any ranking between interventions.

2.10 The range of costs and consequences relevant to the assessment of interventions to reduce alcohol misuse and the different forms of economic evaluation (cost-offset studies or cost analysis; cost-effectiveness analysis; cost-utility analysis; cost-benefit analysis) were set out in Ludbrook et al 2002 pp18-19.

## SECTION THREE POLICY AND LEGISLATION

### SUMMARY

This section reviews the effectiveness evidence relating to policy and legislative interventions. The main findings of the previous review were:

- increasing the price of alcohol through taxation is effective in reducing consumption, although the size of the effect is uncertain;
- reductions in permitted blood alcohol levels for drivers have been effective in reducing motor crashes and fatalities in the US;
- evidence relating to licensing controls is unclear, particularly in the UK; and
- no association has been found between advertising and alcohol consumption.

No cost-effectiveness studies were identified.

More recent studies indicate that:

- the varying size of the price effect may be partly explained in terms of the impact of other regulatory interventions affecting the accessibility of alcohol;
- taking account of the addictive properties of alcohol gives larger long-term price effects;
- there is more evidence of price effects on heavy drinkers and young people;
- evidence continues to support drink drive legislation and minimum age restrictions.

One study demonstrates the cost-effectiveness of lower blood alcohol limits for young or inexperienced drivers.

The results require to be interpreted with caution as they depend largely on studies conducted outwith the UK. More research on the impact of UK policy and legislation is required.

### INTRODUCTION

3.1 This section concerns policy and legislative interventions that can impact on alcohol consumption and misuse. It covers:

- fiscal policy (alcohol taxes);
- drink driving controls;
- licensing provisions; and
- policy towards alcohol advertising.

These interventions have to be evaluated at a population level. The types of analysis include looking at trends over time, comparing outcomes before and after the introduction of some change, and comparisons of different populations with different policy or legislative frameworks. Whilst few new reviews of specific policies were identified for this report, an authoritative overview of the area (Babor et al 2003) and an evidence briefing from the Health Development Agency (Waller et al 2002) have been produced.

## **FISCAL POLICY**

### **Types of intervention**

3.2 Governments can influence the monetary price of alcohol through the level of general or specific taxation on alcohol products. However, it should be noted that the cost of obtaining alcohol includes other factors, such as time and effort, which can be affected by licensing controls and other policy instruments.

### **Evidence of effectiveness**

3.3 The previous review identified evidence that increases in price reduce alcohol consumption but estimates of the size of the effect vary considerably. Estimates covered different time periods and different countries. There appeared to be some consistency in the finding that elasticities were higher for wine and spirits than for beer.

3.4 The effect of alcohol prices is included in the comprehensive policy review by Babor et al (2003). This review suggests that variations in estimates may be explained by prevailing social, cultural and economic circumstances. In particular, the relatively low elasticity for beer may result from studies in beer preferring countries, such as the UK and US. The existence of other policy measures to make alcohol less accessible may reduce the impact of price changes. A review of econometric studies (Chaloupka et al 2002) suggests that long-term effects of price may be higher, due to the addictive nature of alcohol consumption.

### **Population groups**

3.5 There is conflicting evidence concerning the relative effects of price on heavy drinkers. Studies relating prices to alcohol consumption for heavy drinkers provide less convincing evidence than studies relating tax changes to changes in the incidence of alcohol related problems, such as mortality, morbidity, accidents and crime, which show reductions in problems resulting from price rises (Babor et al 2003). These studies provide indirect evidence that price increases are reducing the incidence of problem drinking. Chaloupka et al (2002) report similar findings. They emphasise the importance of considering the full price of alcohol, which includes acquisition costs, and not just the monetary price.

3.6 The previous review reported that the evidence relating to under-age and youth drinking was unclear. Babor et al (2003) report a small number of studies in this area which show both price and minimum legal drinking age affect beer consumption; frequent or heavy drinkers are more price sensitive; high taxes reduce consumption and probability of excessive drinking. Chaloupka et al (2002) report similar findings and also emphasise that the price faced by young people, and particularly students, may be much lower than average retail prices with alcohol being consumed at parties (zero price) and with discounts for college students.

## **DRINK DRIVE LEGISLATION**

### **Types of intervention**

3.7 In the US, legislation has been enacted to introduce lower permitted blood alcohol levels for younger drivers and for persons with previous convictions for drink driving. There have also been reductions in permitted blood alcohol concentration (BAC) levels for all drivers. A number of laws have been passed to bring into force additional sanctions for drink driving, such as mandatory licence suspension and ignition interlock devices.

### **Evidence of effectiveness**

3.8 The previous review reported on the effectiveness of the introduction of zero levels of permitted alcohol consumption for drivers under 21 and reducing blood alcohol levels from 0.10 percent to 0.08 percent (the UK legal limit) for other drivers in the US. The evidence supporting these interventions is reviewed in Shults et al (2001) and this informs the recommendations of the Task Force on Community Preventive Services (Evans et al 2001). Similar evidence is reviewed by Morrison et al (2003), as part of a wider review of transport related interventions, and by Babor et al (2003).

### **Population groups**

3.9 The only specific groups considered are under-age drinkers and persons with previous convictions, covered above.

### **Evidence of cost-effectiveness**

3.10 Shults et al report one study that models the economic effects of lower BAC for young or inexperienced drivers (Miller et al 1998). Assuming a 20% reduction in crashes, the benefit to cost ratio is estimated at \$11:1. Costs included legal system costs and compliance costs for those receiving a six-month licence suspension.

## **LICENSING**

### **Types of intervention**

3.11 Licensing controls can affect a range of issues, such as hours of operation for outlets selling alcohol, types of outlet permitted to sell alcohol, the density of outlets within an area and the age at which alcohol can be legally purchased or consumed. In some countries, such as the US, sales of alcohol may be controlled through public monopoly. These controls may increase or reduce the ease of access to alcohol, which is part of the cost. Promoting lower alcohol content in beverages and the promotion of alcohol free events and alternative activities may have



potential to reduce consumption and related harms but there is little evidence of effectiveness (Babor et al 2003).

## **Evidence of effectiveness**

### *Licensing hours*

3.12 The evidence relating to the impact of licensing hours remains unclear.

### *Outlet density*

3.13 Outlet density is one factor in the cost of access to alcohol and, in general, an increase in the number and type of outlets will increase consumption. Accidents and violence are more likely in areas with high density of outlets but there is no evidence that changing density over time changes the total of problem outcomes (Babor et al 2003). There may be other factors associated with high-density areas that contribute to accidents and violence.

### *Outlet type*

3.14 Babor et al (2003) suggest that off-premise monopoly systems limit consumption and alcohol related problems and are less likely to sell to minors. Such systems result in fewer stores with limited opening hours. Newburn and Shiner (2001) suggest that factors in the drinking environment, such as availability of seating and noise levels, can affect both levels of consumption and alcohol related problems but this is not based on a systematic review.

### *Age limits*

3.15 Shults et al (2001) review evidence of the effect of changing minimum drinking age on motor vehicle accidents and fatalities. Overall the impact is in the region of 10% to 16%, with crashes decreasing with an increase in the minimum drinking age and vice versa. A subset of studies that restricted analysis to the age group directly affected by changes in the legislation reported a median change in crashes of 19%. Maintaining the age limit at 21 in the US is supported by the Task Force on Community Preventive Services (Evans et al 2001).

3.16 Wagenaar and Toomey (2002) provide a systematic review of minimum drinking age laws (MDAL) on alcohol consumption, drink driving and traffic crashes and other health and social outcomes, and also review the literature around underage access. They conclude that the balance of evidence supports the effectiveness of MDAL in reducing alcohol consumption, drink driving and adverse traffic related outcomes. There is some evidence of other effects but the pattern is less clear. There appears to be little enforcement of MDAL with purchase attempt studies showing 44-97% of outlets selling to minors without requesting proof of age. Studies of enforcement initiatives show reductions in sales to minors of at least a half. Babor et al (2003) support the effect of minimum drinking age and stress the importance of enforcement.

## **ADVERTISING CONTROLS**

### **Types of intervention**

3.17 Governments can potentially restrict the level of advertising and the content of advertising, either by legislative action or through voluntary agreements with the alcohol industry. There may also be controls on other promotional activities.

### **Evidence of effectiveness**

3.18 The evidence relating to advertising bans remains mixed, with the most recent study showing bans decreasing consumption (Saffer and Dave 2002; cited in Babor et al 2003).

### **Population groups**

3.19 Babor et al (2003) review research that considers the cumulative effect of exposure to advertising by children and young people, and advertising content, in shaping attitudes towards alcohol. A small amount of research has also been done on sponsorship and Internet marketing, which may be particularly targeted at the young.

## **QUALITY AND RELEVANCE OF EVIDENCE**

3.20 Evidence relating to policy interventions can be difficult to obtain and to interpret as it mainly comes from natural experiments resulting from policy changes. Chaloupka et al (2002) identify an importance source of potential bias in cross sectional studies of US States, where a more anti drinking social attitude may be associated with higher taxation and vice versa. Studies that have attempted to control for such effects have mixed results, with studies reporting either small or large reductions in estimated elasticities. The same potential bias may exist in other cross sectional studies, together with other limitations identified previously; weak study designs, publication bias, short follow up and multiple interventions implemented at the same time. There are relatively few studies of licensing interventions and the results need to be treated with some caution.

3.21 The lack of evidence associating advertising and alcohol consumption may be the result of little variation in spending levels and opportunities to substitute other forms of promotion. The effect of advertising bans in cross-country comparisons could be due to reverse causality; i.e. countries with low consumption being more likely to have alcohol advertising bans. This problem also affects US studies relating to a number of policy issues, where attitudes towards alcohol vary across states and states that implement the most restrictive legislation may be predisposed to reduce alcohol consumption or problem drinking.

3.22 Results from the US must be considered in the context of falling total consumption. Cross-national studies may be affected by cultural differences that make results difficult to interpret. Caution should be exercised in translating results from one country to another.

## **FURTHER RESEARCH**

3.23 The main research priority remains the lack of UK evidence and any new initiatives should be carefully evaluated. Longer-term follow up of the impact of legislative action is also required.

## SECTION FOUR ENFORCEMENT

### SUMMARY

This section reviews the effectiveness and cost-effectiveness evidence relating to interventions to enforce legislation. The main findings of the previous review were:

- there is limited evidence supporting community enforcement programmes for under-age drinking in the US;
- random breath testing has been effective in enforcing drink drive legislation in the US and Australia, reducing fatalities, injuries and crashes;
- a study modelling the costs and benefits of a sobriety checkpoint, using US data, showed benefits in excess of costs; and
- a study of a server training programme in the US also found benefits in excess of costs.

The results of the present review:

- confirm the effectiveness of both random breath testing and selective breath testing at sobriety checkpoints;
- provide some support for server training but the effectiveness may depend on pre-existing levels of support for the objectives of the scheme;
- confirm the cost-effectiveness of sobriety checkpoints

Results based on cost data from other countries may not directly translate into similar results in a UK setting. There is a lack of UK data relating to enforcement actions.

### INTRODUCTION

4.1 The previous section reviewed evidence relating to legislative interventions. The impact of legislation also depends on the action taken to enforce the measures and the visibility of the enforcement process. This section covers evidence relating to specific enforcement actions in the areas of:

- legal drinking age;
- drink driving; and
- server training.

Only one new review of specific policies in this area was identified together with overviews of the evidence provided by Babor et al (2003) and Waller et al (2002).

## LEGAL DRINKING AGE

### Types of intervention

4.2 Enforcement of under-age sales laws frequently takes the form of ‘decoy sales’, in which under-age buyers attempt to purchase alcohol under observation of the enforcement agency. Enforcement campaigns may be accompanied by media publicity and training schemes aimed at sales outlets. No new reviews of this area were identified, although the importance of enforcement was identified in considering the effectiveness of minimum age legislation.

## DRIVING RELATED

### Types of intervention

4.3 No additional studies were identified relating to ignition interlock devices or ‘administrative per se’ licence suspension. The additional evidence relating to sobriety checkpoints is reviewed below.

### Effectiveness

4.4 A review by Elder et al (2002) confirms the effectiveness of both random breath testing (RBT) and selective breath testing (SBT) at sobriety checkpoints in reducing alcohol related crashes and consequential injuries and deaths. (SBT requires police to have a reason to suspect that the driver has been drinking; RBT does not). The studies reviewed suggest similar levels of effectiveness but there were no direct studies comparing the effectiveness of the two approaches. This review also demonstrated that sobriety checkpoints maintained their effectiveness over time. (These results are part of a wider review for the Task Force on Community Preventive Services and are also reported in Shults et al (2001). For the Task Force recommendations see Evans et al (2001)).

**Table 4.1 Impact of sobriety checkpoints**

	Decrease in fatal crashes	Decrease in fatal and non fatal injury crashes	Decrease in property damage crashes
	Median % (IQR)	Median % (IQR)	Median % (IQR)
RBT	22 (14 –35)	16 (11-20)	15 ; 26 *
SBT	20 ; 26*	20 (9 – 23)	24 (14 – 32)

\*only two studies reported these results  
Source: Elder et al (2002).

4.5 Babor et al (2003) also consider the limited evidence relating to designated driver programmes but any effect is modest. Ride services (free rides home for intoxicated persons

who would otherwise drive) are popular but operate on too small a scale to have any impact at population levels.

## **Cost-effectiveness**

### *Community sobriety checkpoint*

4.6 In addition to the study reported in the previous review, Shults et al (2001) provide results from 3 non peer reviewed studies. All the studies report net benefits. The additional study of a SBT checkpoint gives a higher benefit to cost ratio \$23:1 but has excluded part of the costs (publicity and education). Two studies of RBT checkpoints have been carried out in Australia and The Netherlands. The former reports very high net benefits based on an assumed 75% reduction in crashes. The latter study reports a more modest net benefit, and a benefit to cost ratio of \$2:1, based on a 25% reduction in crashes. This is more consistent with the effectiveness literature.

## **SERVER TRAINING**

4.7 The effect of server training will depend on other factors, such as the actual or perceived level of enforcement relating to underage drinking and serving intoxicated drinkers and the legal liability and penalties relating to owners and servers themselves. Studies of server training may evaluate outcomes in terms of server behaviour, drinking outcomes or further consequences in terms of accidents or other results of intoxication.

4.8 Shults et al (2001) report two studies showing improvements in appropriate server behaviour follow training; one based on observation and the other using researchers as customers. Three studies reporting BAC all showed reductions in the number of customers reaching specific levels (drink drive limits). One study showed a non-significant decrease in alcohol consumption although drinks per hour were reduced. Babor et al (2003) also review this area and indicate that voluntary agreements may be successful if supported by community pressure but there are no controlled evaluations.

## **QUALITY AND RELEVANCE OF EVIDENCE**

4.9 The problems with drink driving studies were identified in the previous review (Ludbrook et al 2002 pp33-34). The reviews carried out for The Community Preventative Services Task Force take the quality of the studies into account and their recommendations indicate that the evidence is considered sufficiently robust.

4.10 The server training evaluations are fairly small-scale studies. Four out of 5 studies were based on volunteer programmes and one reports that most of the effect was due to one establishment with a particularly supportive manager. There is only short-term follow up and the results may not be generalisable.

## **FURTHER RESEARCH**

4.11 The research requirements identified previously were:

- UK evidence relating to enforcement actions, particularly with respect to under-age drinking;
- the length of time for which the effects of enforcement actions are sustained; and
- the level of enforcement that is optimal, in terms of costs and benefits.

The review by Elder et al (2002) indicates that the impact of sobriety checkpoints is maintained over time. The other research requirements remain to be met.

## SECTION FIVE

## PREVENTION

### SUMMARY

This section reviews the effectiveness and cost-effectiveness evidence relating to the prevention of problem drinking and alcohol abuse. The main findings of the previous review were;

- there is only weak evidence of effectiveness for school-based interventions;
- evaluations tend to show changes in knowledge rather than behaviour;
- characteristics which contribute to success are interactive design, parental, community and peer involvement;
- health promoting schools have some positive impacts but less on alcohol;
- mass media campaigns affect knowledge and attitudes rather than behaviour;
- screening and counselling adolescents was not cost-effective in one US study; and
- thiamine supplementation of beer was shown to be cost-effective in preventing Wernicke-Korsakoff encephalopathy in an Australian study.

The additional studies reviewed confirm the general findings relating to school based interventions and mass media campaigns. In addition:

- there is some evidence that booster sessions may increase effectiveness;
- the impact of specific components of programmes varies with other characteristics of the programmes;
- community involvement may increase effectiveness by restricting access to alcohol for young people;
- some studies have identified negative impacts of prevention programmes; and
- one study demonstrates the cost-effectiveness of family focussed prevention programmes.

Better research designs are needed to provide more robust evidence in the area of prevention.

### INTRODUCTION

5.1 This section focuses on interventions to prevent alcohol misuse. The majority of the literature remains concerned with school-based interventions, although there is some increasing overlap with community interventions. The limited evidence relating to other interventions, including mass media campaigns, is then presented. Similar issues have been covered by a Health Development Agency Evidence Briefing (Waller et al 2002)



## SCHOOL-BASED INTERVENTIONS

### Types of intervention

5.2 Interventions are based around teaching social skills that will help in resisting social and peer pressure. As well as the content of the programme, the style of delivery can also be important. The main distinction drawn is between:

- interactive programmes, which include social influence and comprehensive life skills;
- interactive delivery, which requires elements such as participation, student to student communication, small group activities and corrective feedback; and
- non-interactive programmes, which are based on delivery of knowledge through mainly didactic teaching.

Some of the more recent reviews have focussed on the effectiveness of individual programme components. Most of the literature concerns substance abuse more generally, rather than alcohol misuse specifically.

### Effectiveness

5.3 An updated meta-analysis of drug prevention programmes confirms some previous findings (Tobler et al 2000; Tobler 2000). Considering all areas of substance abuse, interactive programmes are more effective than non-interactive (see table 5.1). For programmes targeting alcohol, however, the difference is not significant. When the analysis is restricted to a subset of high quality programmes (features include random assignment, interventions of 4 hours or more, follow up of 3 months or more, control for pre-existing differences), the difference becomes highly significant ( $p=0.001$ ).

**Table 5.1 Comparison of non-interactive and interactive programmes.**

	Non interactive			Interactive		
	n	Weighted mean effect size	95% confidence interval	n	Weighted mean effect size	95% confidence interval
<b>All evaluations</b>						
Alcohol only	17	0.09	(0.02, 0.16)	30	0.12	(0.07, 0.17)
Substance abuse	24	-0.01	(-0.05, 0.03)	32	0.14	(0.10, 0.18)
<b>High quality</b>						
Alcohol only	5	-0.10	(-0.28, 0.08)	18	0.14	(0.08, 0.20)
Substance abuse	11	0.04	(-0.02, 0.10)	20	0.12	(0.08, 0.17)

Source: Tobler et al (2000) Table 14.

5.4 The studies reported in Tobler et al (2000) had follow up periods of at least 3 months, with between a quarter and a third of studies having longer term follow up (beyond one year). However, the results were not presented by length of follow up. Skara and Sussman (2003)

reviewed adolescent programmes with at least 2 years follow up but only 7 of 25 studies provided results for alcohol (2 of which were also included by Tobler et al 2000). Five of these reported positive outcomes, of which 4 were designed to provide booster sessions.

5.5 Foxcroft et al (2002; 2003) have also reviewed programmes targeted at young people and with longer term follow up but with specific interest in the results relating to alcohol. They included 56 studies in their review, less than half of which were included in the review by Tobler et al (2000). Twenty of the studies showed evidence of ineffectiveness and interventions with short term or medium term results were only partially effective at best. Three longer-term studies reported effective interventions, based on life skills training, a school and community intervention and a family based intervention. Five other studies with longer term follow up, including the 4 year follow up of Project Northland, showed no effect.

5.6 Cuijpers (2002a) reviews evidence relating to specific components of school based drug prevention programmes. Evidence relating to the added effectiveness of booster sessions suggests that the effect depends on other characteristics of the programme. The only study specifically on alcohol misuse showed a positive effect (Shope et al 1992 cited in Cuijpers 2002a). By contrast, community interventions added to school programmes significantly increase the effect. Again, only one of these studies was concerned with alcohol misuse. Studies that directly compare peer leadership and adult leadership for the same drug prevention programmes are reviewed in more detail in a second paper (Cuijpers 2002b). Overall, peer leadership was more effective but with wide variations in the results. In some cases, the adult led programmes were more effective but there were too few studies to identify the other characteristics of programmes or settings which result in peer led programmes being more effective. Only 4 of the 12 studies included alcohol.

5.7 Babor et al (2003) conclude that resistance skills may produce small, short-lived changes in behaviour unless booster sessions are provided. Studies of normative education report small to moderate behavioural changes. Combining school and community interventions appears to have more impact, not least because the community intervention may be successful in restricting access to alcohol by young people.

## **Population groups**

5.8 Most interventions target school age children but the age groups vary and results for particular interventions may not translate to other age groups. The majority of school-based interventions are aimed at the 11-14 age range. There are few studies of programmes aimed at college or university students and no convincing evidence of impact on behaviour (Babor et al 2003).

## **Settings**

5.9 No studies were found comparing alternative settings for the delivery of programmes to the target group.

## **Providers**

5.10 There were no new studies in this area other than comparisons of peers and non peers (see 5.6 above).

## **OTHER HEALTH PROMOTION INTERVENTIONS**

### **Types of intervention**

5.11 Mass media campaigns aim to communicate health promotion messages to the general population through a variety of media. Media campaigns can also form part of enforcement programmes. Community prevention initiatives combine education with community action related to under-age drinking. Given the type of initiatives pursued, there is some overlap with the legislation and enforcement literature but the focus of interest here is the community setting.

### **Effectiveness**

5.12 Derzon and Lipsey (2002) reviewed mass media campaigns targeted at youth. Their findings confirmed the positive effects on attitudes and knowledge but also suggest some positive effect on behaviour with respect to alcohol. Babor et al (2003) review counter-advertising but conclude that there has been too little and the quality has been too poor to draw conclusions about its effectiveness. US warning labels on alcohol have raised awareness of specific health messages but there is little evidence of change in behaviour (Babor et al 2003). Labels are often small and obscure.

5.13 Hingson and Howland (2002) review of community interventions covering studies included previously. These are found to be generally effective. Treno and Lee (2002) provide an overview of community action, which combines media advertising, legislative action and enforcement. The target of such community action is drink related problems rather than problem drinkers, per se. Although problem drinkers have a higher rate of drink related problems, most drink related problems are not caused by problem drinkers.

### **Population groups**

5.14 Mass media campaigns and community actions may be aimed at a general population or aimed at teenagers and minors.

### **Settings**

5.15 No studies were found comparing alternative settings for the delivery of programmes.

## **Providers**

5.16 No studies were found comparing alternative providers for the delivery of programmes.

## **COST-EFFECTIVENESS**

5.17 Spoth et al (2002) carried out an evaluation of two family focussed adolescent substance-use prevention programmes in terms of cost per case of alcohol-use disorder prevented, benefit cost ratio and net benefits per participating family. Schools were randomised to either the Iowa Strengthening Families Program (ISFP) or the Preparing for the Drug-Free Years Program (PDFY) or to a minimal contact control group. Both interventions included instruction on parenting skills but the ISFP includes the target child in all sessions and has seven sessions compared with 5 for PDFY.

5.18 Cases of alcohol-use disorder in each group were projected from data relating to age of starting alcohol use. Costs of alcohol-use disorder were estimated from a societal perspective using a human capital approach. This provides a conservative estimate of benefit, as it does not value the health gain per se but only the economic consequences of the gain. Direct and indirect costs of the intervention were included but time costs to participants were not estimated. It was assumed that voluntary participation implied that benefits to the participants were perceived to outweigh costs. Travel and childcare costs were included.

5.19 Analysis was on an intention to treat basis, so included data on those who failed to attend. Students who had not started alcohol use at the end of follow up (age 17) were all assigned an onset age of 18+, which may underestimate differences between groups. Both programmes had positive benefit:cost ratios (9.6 for ISFP and 5.85 for PDFY) and positive net benefits per family (\$5923 for ISFP and \$2697 for PDFY).

## **QUALITY AND RELEVANCE OF EVIDENCE**

5.20 Concerns remain about the quality of the evaluations and the lack of longer-term follow up. Werch and Owen (2002) provide a review of negative outcomes of substance use prevention problems; i.e. programmes that result in increases in substance use, including alcohol. They identify three basic types of negative effects; studies indicating mixed positive and negative programme effects, where negative outcomes may relate to a subgroup of the young people studied, such as existing users versus non users; studies indicating negative effects together with mainly non significant programme effects, where the problems relate to both theory failure and implementation failure; and finally, but rarely, an isolated negative effect in a predominantly positive programme, which may be an artefact. The relative frequency of such negative effects in the overall literature is not provided but this study serves to emphasise the importance of programme populations, contexts and design in the transference of evidence into practice.

## **FURTHER RESEARCH**

5.21 The research needs identified in the previous review were:

- better designed studies, particularly with respect to the comparison groups;
- translation of effect sizes into outcomes;
- identifying the potential benefit of targeting high-risk groups for health promotion;
- evaluation of the costs and benefits of community interventions;
- establishing the generalisability and sustainability of community programmes;
- development and evaluation of novel interventions in health promotion; and
- consideration of whether there is a cumulative effect of exposure to health promotion messages.

These research requirements remain unchanged.

## **SECTION SIX SCREENING AND DETECTION**

### **SUMMARY**

This section reviews the effectiveness and cost-effectiveness evidence relating to screening for and detection of problem drinking and alcohol abuse. The main findings of the previous review were;

- AUDIT is more effective in detecting at risk, hazardous or harmful drinking;
- CAGE is superior in detecting alcohol abuse or dependence;
- T-ACE and TWEAK are more sensitive and specific for screening pregnant women;
- laboratory tests do not perform well as screening instruments;
- telemarketing has been shown to be cost-effective in marketing screening and brief intervention packages to GPs in Australia; and
- specialist workers were shown to be cost-effective as screeners in a UK general hospital.

In the current review:

- one additional review supports the use of AUDIT;
- the importance of screening for fetal alcohol exposure is identified; and
- one cost-effectiveness study supports a rapid screening in A&E departments.

Evaluating the performance of screening tests is hampered by the lack of an agreed gold standard.

### **INTRODUCTION**

6.1 This section concerns the screening instruments that are available for the detection of problem drinking, alcohol abuse and dependence. No further evidence relating to laboratory tests was identified. The effectiveness of screening instruments is determined by the accuracy of the information that is provided. Very little additional literature was available.

### **SCREENING QUESTIONNAIRES**

#### **Types of intervention**

6.2 In addition to the screening instruments reported previously (Ludbrook et al 2002), a shorter version of AUDIT (Alcohol Use Disorders Identification Test), the Fast Alcohol Screening Test (FAST), has been developed for use in situations where there is insufficient time to use the main 10 item test; for example, accident and emergency departments.

## **Effectiveness**

6.3 A recent review of research relating to AUDIT indicates that this works at least as well as and often better than other measures (Reinert and Allen 2002). A single multi-centre study has assessed FAST, using AUDIT as the gold standard comparator, as an alternative to other quick assessments PAT (Paddington Alcohol Test) and CAGE (Cut down Annoyed Guilty Eye-opener) (Hodgson et al 2003). FAST performed well in comparison to AUDIT and the other alternatives. CAGE appears to be better at low levels of prevalence.

## **Population groups**

6.4 AUDIT appears to be less sensitive and more specific for women, using the traditional cut off point of 8 (Reinert and Allen 2002). This lends support to the use of lower cut offs, with 5 or 6 being suggested. Studies with college students and adolescents are also reviewed but in most of these the AUDIT results have not been well validated. AUDIT does not perform well with the elderly but two studies suggest it may be useful in screening mental illness patients.

6.5 Savage et al (2003) have identified the need to measure fetal exposure to alcohol and not just alcohol dependence in pregnant women.

## **Setting**

6.6 No comparisons of settings identified but the FAST study was carried out in A&E departments (Hodgson et al 2003)

## **Providers**

6.7 No comparisons of different persons administering questionnaires were identified.

## **COST-EFFECTIVENESS**

6.8 The study by Hodgson et al (2003) included information relating to the costs of administering FAST and other screening tests. These were collected in one A&E department and are based on a grade E nurse administering the test. FAST had the lowest cost (£1,669 for an annual population of 50,000 patients). This was not significantly less than the other quick assessment methods but was significantly less than AUDIT (£10,400).

## **QUALITY AND RELEVANCE OF EVIDENCE**

6.9 The cost-effectiveness study is relatively small and detailed costing was only carried in one centre. The assessment of the screening instruments is still limited by the lack of an agreed diagnostic standard against which to confirm the screening results.

## **FURTHER RESEARCH**

The research requirements identified in the previous report remain. These were:

- the need to develop an agreed diagnostic gold standard;
- research on the performance and role of laboratory tests as they are developed; and
- comparisons of screening settings and providers.



## **SECTION SEVEN      BRIEF INTERVENTIONS**

### **SUMMARY**

This section updates the evidence relating to the effectiveness and cost-effectiveness of brief interventions used to treat problem drinking and alcohol abuse. The main findings of the previous report were;

- brief interventions are effective in reducing alcohol consumption for at least 12 months in patients who are not alcohol dependent;
- pooled results from clinical trials show a 24% reduction in alcohol consumption;
- those who received the intervention were twice as likely to change their behaviour compared with control groups;
- brief interventions have fairly low costs and have been shown to be cost-effective in 3 economic studies;
- using Scottish cost data the cost per life year lies in the range £1446 - £2628 assuming no cost savings; and
- if resource savings are taken into account brief interventions may provide net benefits.

Savings from reduced future use of health care services need to be interpreted with care. It is more likely that resources will be released for alternative uses than that financial savings will be achieved.

More recently published literature supports the effectiveness and cost-effectiveness of brief interventions. Additional points of interest are:

- no gender difference was found where separate data were available;
- brief interventions in a general hospital setting have not been shown to be effective;
- effectiveness has not been shown to vary with type of provider or intensity of intervention;
- four year follow up of Project TrEAT suggests that effects are sustained over this period;
- ten year follow up of the Australian arm of the Phase II WHO collaborative project finds no significant difference between intervention and control groups.

### **INTRODUCTION**

7.1      A brief intervention is a time-limited intervention focusing on changing patient behaviour with respect to alcohol consumption through motivational counselling. The literature reviewed previously in this area was more extensive than for many other interventions. Four recent reviews of the effectiveness literature are included in this update and 5 economic evaluations.

## **EFFECTIVENESS OF BRIEF INTERVENTIONS**

### **Types of brief interventions.**

7.2 Different studies use varying definitions of what is a brief intervention but there are certain characteristics that are generally followed and have been defined in the literature. Moyer et al (2002) suggest that apart from their length, brief interventions generally:

- aim to reduce or to achieve non problem drinking as opposed to abstinence;
- are delivered by general health care professionals not addiction specialists;
- are delivered to non dependent drinkers;
- address motivation to change drinking habits; and
- are self directed.

Reviews have been included if they refer to brief interventions, minimal interventions or extended brief interventions. One review of bibliotherapy, or self help manuals, has also been included (Apodaca and Miller 2003).

### **Effectiveness of brief interventions.**

7.3 The previous review (Ludbrook et al 2002) concluded that brief interventions are effective in reducing alcohol consumption for at least 12 months in patients who are not alcohol dependent, and when compared with no intervention or usual care. Pooled results from 6 trials estimated the effect of brief intervention as a 24% reduction in alcohol consumption (95% CI; 18%-31%). Moyer et al (2002) provide a meta-analysis of a larger number of studies and consider both brief interventions versus controls in opportunistic or non-treatment seeking settings (table 7.1) and brief interventions versus extended treatment in treatment seeking populations (table 7.2).

7.4 The results for brief intervention versus control in non-treatment seeking populations are broadly similar to those reported by previous reviews. The lack of significant effect after 12 months may reflect the small number of studies with extended follow up and large confidence intervals on the results of some of the studies. The authors investigated sources of variation in the results and found that the exclusion of more alcohol dependent individuals could explain this for the >3 – 6 months follow up point. The effect of brief intervention was significantly larger when individuals with more severe alcohol problems were excluded.

7.5 The comparison between brief intervention and extended treatment found little evidence of a significant difference in effect. However, the type of brief intervention delivered in these studies tends to be different from that delivered in the non-treatment seeking population. The brief intervention is more likely to be delivered by a therapist or counsellor rather than a general health care provider and the intervention is more intensive. Drummond (2002) also comments that the extended treatments in these studies may not have been the most effective forms of treatment available.

7.6 A second review concentrated on psychosocial interventions delivered by general practitioners regardless of problem area (Huibers et al 2003). Only two studies relating to

alcohol were reported. One is included in the review by Moyer et al and the other was a comparison of different providers reported below.

**Table 7.1 Aggregate effect sizes: brief intervention versus control in non-treatment seeking samples**

Outcome and length of follow up	Number of samples	Effect size	95% confidence interval
Composite of all drinking outcomes			
= 3 months	4	0.30**	(0.08, 0.52)
>3 – 6 months	11	0.14***	(0.08, 0.21)
>6 – 12 months	23	0.24***	(0.18, 0.30)
>12 months	5	0.13	(-0.01, 0.06)
Alcohol consumption			
= 3 months	3	0.67***	(0.39, 0.95)
>3 – 6 months	11	0.16***	(0.10, 0.22)
>6 – 12 months	20	0.26***	(0.20, 0.32)
>12 months	2	0.20	(-0.01, 0.41)

Source Moyer et al 2002

\*\* p < 0.01

\*\*\* p < 0.001

**Table 7.2 Aggregate effect sizes: brief intervention versus extended treatment in treatment seeking samples**

Outcome and length of follow up	Number of samples	Effect size	95% confidence interval
Composite of all drinking outcomes			
= 3 months	7	-0.03	(-0.22, 0.17)
>3 – 6 months	7	0.17	(-0.02, 0.36)
>6 – 12 months	10	0.03	(-0.10, 0.15)
>12 months	10	0.01	(-0.12, 0.13)
Alcohol consumption			
= 3 months	2	0.00	(-0.63, 0.63)
>3 – 6 months	3	0.42**	(0.12, 0.71)
>6 – 12 months	3	0.00	(-0.15, 0.16)
>12 months	7	0.03	(-0.11, 0.18)

Note: positive values for effect size indicate that extended treatment had a better outcome than brief intervention.

Source Moyer et al 2002

\*\* p < 0.01

7.7 Finally, a review of brief interventions adapted from motivational interviewing included 15 studies related to substance abuse (Dunn et al 2001). Some of the studies relate to alcohol and others to illicit drug use but results are not summarised separately. The studies represent a mixture of motivational interviewing versus no treatment, motivational interviewing versus other treatments and motivational interviewing as an addition to usual treatment. Ten of the 15 studies had significant results in favour of motivational interviewing with effect sizes ranging from 0.30 to 0.95. A similar group of studies, but with three more recent additions, was reviewed by Burke et al (2003). Results were positive and significant in comparison with no intervention but not significant when compared to other active treatments. Both of these reviews included some studies with more dependent populations of drinkers.

7.8 The review of effectiveness of self-help manuals (Apodaca and Miller 2003) found some effect, compared with no intervention, with self referred drinkers but variable results for those identified through opportunistic screening. When compared with any more extensive intervention effect sizes were close to zero.

### **Population groups.**

7.9 For a small number of studies, Moyer et al were able to disaggregate effects by gender and found no significant differences. A review of brief intervention studies involving adolescents found a small but significant effect (Tait and Hulse 2003). All of the studies identified were carried out in the US. Some of the numbers are quite small and the settings range across schools, universities and health care settings.

### **Settings.**

7.10 No reviews of alternative settings were identified. One systematic review related to brief interventions in a general hospital setting (Emmen et al 2004). Of eight studies that met the inclusion criteria, only one found a significant effect. However, in the other studies, drinking was reduced in both intervention and control groups. This suggests that the assessment process may be having an influence. A review by D'Onofrio and Degutis (2002) focussed on the emergency department (ED) setting but found only a small number of studies that had recruited from EDs. In some of these, enrolment into other programmes was the main outcome.

### **Providers.**

7.11 No reviews of alternative settings were identified. One RCT, included in a wider review, compared the effects of a brief cognitive behavioural intervention (CBI) delivered by GPs or a nurse practitioner and found no significant difference between the groups in quantity or frequency of drinking (McIntosh 1997; cited in Huibers et al 2003).

### **Intensity of intervention.**

7.12 McIntosh also compared a two-session intervention with a one-session intervention, both delivered by GPs, and found no significant difference (McIntosh 1997; cited in Huibers et al 2003). Again, there were no reviews on this topic.

### **COST-EFFECTIVENESS**

7.13 The previous literature review concluded that brief interventions for alcohol treatment had been shown to be cost-effective in published research. This update identified 5 studies that provided cost-effectiveness results. These studies varied in settings and provided more mixed results.

7.14 Fleming et al (2002) provided a longer-term (48 months) update of the results from Project TrEAT. Results at 12 months were reported previously. The no treatment group received a booklet on general health issues. The treatment group received the booklet and were scheduled to see their GP for the brief intervention, including a workbook of current health behaviour, a review of the prevalence of problem drinking, a list of the adverse effects of alcohol, a worksheet on drinking cues, a drinking agreement in the form of a prescription and drinking diary cards. The intervention was based on MRC protocols and consisted of two 15-minute appointments a month apart. Patients received a follow up call from the clinic nurse two weeks after each GP meeting. The cost per patient was \$205 (£140) (1993 prices). Details of the costing are provided in Ludbrook et al 2002.

7.15 Health outcomes (self-reported alcohol consumption) at six and twelve months had shown that the average number of drinks in the past seven days declined by 39.5% at six months and 40.0% at 12 months. A significantly smaller decrease was reported by the control group ( $p < 0.05$ ). At 48 months the reduction in drinking by the brief intervention group was maintained at a similar level. A further reduction in drinking by the control group resulted in an insignificant difference at 48 months, although the difference had been significant at 24 and 36 months. The effect across the whole period was also significant ( $p = 0.0018$ ).

7.16 Binge drinking reduced by 49.1% (6 months) and 45.7% (12 months), which was significantly greater than the reduction in the control group ( $p < 0.05$ ). In contrast with the results for drinking levels, there was a subsequent increase in binge drinking by the intervention group although it remained below pre intervention levels. The difference between the control and interventions groups was still significant at 48 months and the effect across the whole time period was significant ( $p = 0.0002$ ).

7.17 Savings in emergency room visits and hospital use were \$712 per patient at 48 months ( $p = 0.02$ ). Hospitalisations and emergency department visits were both significantly reduced. In terms of crime costs, the difference in the costs of legal events (substance abuse, theft, forgery, assault) was \$102 per patient but this was not statistically significant. The saving of \$7171 per patient for motor vehicle events was significant ( $p = 0.03$ ). Total savings of \$7,985 per patient were also significant ( $p = 0.007$ ).

7.18 Combining the total economic costs and benefits, the benefit-cost ratio is 39:1 (95% CI [5.4, 72.5]) with a net benefit of \$7780 (95% CI [\$894, \$14,668]). Considering only the perspective of the health care system, the benefit-cost ratio is 4.3:1 (95% CI [0.6,8.0]) with a net benefit of \$546 (95% CI [-71, \$1164]). These are essentially cost offset results. In terms of health benefits, data are presented on mortality. There were 7 deaths in the control group and 3 in the treatment group but the difference was not statistically significant. No other health benefits were estimated and there was no attempt to combine the health results with the economic data.

7.19 Storer (2003) reports a higher benefit:cost ratio for reduced hospital care costs following brief intervention. However, this is based on an unmatched comparison of those who did and did not receive a brief intervention and the results may be subject to selection bias.

7.20 Freeborn et al (2000) report different results, based on a randomised, controlled trial in an HMO setting. Significant results for drinking behaviour at 6 months had eroded at 12 months. Only number of drinking days per week continued to show a significant difference. There was no significant difference in resource use between the intervention and control groups. The authors point out that this could be considered an effectiveness study as opposed to an efficacy study, in the sense that the study did not rely on volunteer clinics or clinicians. This may have reduced the effectiveness of the intervention, with consequences for resource use.

7.21 Hulse and Tait (2003) compared brief interventions and information only in an inpatient psychiatric setting. A 5 year follow up of administrative data found no difference in health service utilisation between the two groups. However, both groups used significantly fewer services than a matched group of patients who had received neither intervention. No formal cost-effectiveness was carried out; savings were implied from less hospital use. A second Australian study (Shakeshaft et al 2002) compared brief interventions and cognitive behavioural therapy in an outpatient community based drugs and alcohol setting. The interventions were similar in effectiveness but brief intervention had lower costs (\$32.84 compared with \$76.53) resulting in significantly better cost-effectiveness for brief interventions. Clearly, a more intensive intervention does not provide additional benefit in a group that responds to brief intervention. An interesting point is that the least responsive group were those referred from a legal source. Sobell et al (2002) compared a mailed intervention using either drinking guidelines or personalised feedback. Both interventions were low cost and effective in reducing drinking. However, the subjects were recruited by advertisement and must be assumed to have been well motivated to change their behaviour before responding.

## **QUALITY AND RELEVANCE OF THE EVIDENCE.**

7.22 The trials included in the reviews of evidence come from a range of countries including the UK. The results are fairly consistent in their support for brief interventions and should be applicable to Scotland.

7.23 What is less clear is the generalisability of the results. The practitioners delivering interventions in research settings will be highly motivated and the effects may not be completely replicated in routine practice. Some groups are clearly excluded from the scope of the intervention but the process of consent for research studies means that the participants in the trial

are self-selecting. A single study, included in the cost-effectiveness review, has reported effectiveness eroding at 12 months in a study that did not rely on volunteers (Freeborn et al 2000) but there are no systematic reviews in this area.

7.24 None of the cost-effectiveness studies has been conducted in a UK context and the cost-offsets suggested for medical care may be based on higher treatment costs in other countries. There remains little evidence in the economic evaluations of attempts to include health benefits in the analysis. The one study which fails to find any cost saving, (Freeborn et al 2000), provides a cautionary note about the possibility of reduced effectiveness of brief interventions in routine practice.

## **FURTHER RESEARCH**

7.25 The areas identified previously for further research were:

- the effectiveness of brief interventions when used routinely outwith a study setting;
- longer term effectiveness;
- incremental effectiveness when combined with medication;
- costs and effectiveness of implementation strategies for a brief intervention programme; and
- improved economic modelling.

7.26 In the additional literature reviewed, there is one US study addressing the first of these issues (Freeborn et al 2000) and 2 studies have published longer-term follow up data (Fleming et al 2002; Wutzke et al 2002). The former is reported in the cost-effectiveness section above and suggests that effects are maintained at 4 years. The latter study is a 10 year follow up which finds no difference between intervention and controls. This is a result of reduced alcohol consumption in the control group and may relate to diminishing alcohol consumption with age. This study was not strictly eligible for this review, as it was a single effectiveness study, and the results are reported here for noting as the only follow up of this length identified in the literature. Another single effectiveness study of naltrexone in combination with brief intervention showed a reduction in frequency of heavy drinking but not in drinking days (Kranzler et al 2003). Most of the patients were defined as having mild alcohol dependence.

7.27 Overall, the need for further research in all these areas remains, particularly with respect to UK settings.

## **SECTION EIGHT      DETOXIFICATION**

### **SUMMARY**

This section reviews the effectiveness and cost-effectiveness evidence relating to detoxification treatments. The main findings of the previous review were;

- benzodiazepines are the first choice therapy on the basis of safety and effectiveness;
- outpatient treatment is safe and effective for mild to moderate symptoms;
- a small study of home detoxification in Australia found better outcomes at lower cost when compared with matched inpatient treatment; and
- a US study found that outpatient treatment was significantly cheaper per successful detoxification.

No additional effectiveness reviews were identified in the update. One study of costs and outcomes in France was identified but the results need to be interpreted with care.

More information is needed about treatment settings, providers and intensity of treatment in a UK context.

### **INTRODUCTION**

8.1 Detoxification refers to the period during which patients become alcohol free. The effectiveness of interventions for managing alcohol withdrawal syndrome was reviewed in the previous report (Ludbrook et al 2002). No new reviews of effectiveness were identified for this update. One economic study is described below.

### **COST-EFFECTIVENESS**

#### **Costs and outcomes**

8.2 Nalpas et al (2003) report on the costs and outcomes of detoxification and one year follow up for 4 centres in France. This was an open, non-randomised study. Costs were based on official reimbursement rates.

8.3 The main factor in the difference in follow up cost for centre 1 was due to inpatient stays in the post withdrawal unit.

8.4 The authors calculate an index of efficiency, which they define as the cost of preventing the relapse of one patient for one month and this is similar for all centres. Centre 1 is regarded as more effective because of the longer mean time without relapse. However, this comparison must be biased to some extent by the longer or more frequent stays in the post withdrawal unit at this centre, as the opportunity to relapse is restricted.



**Table 8.1 Costs and outcomes by centre**

Center	Patient numbers	Mean stay (days)	Inpatient mean cost	Follow up mean cost	Mean time without relapse (months)
1	94	11	€1327	€1704	5.89
2	50	28	€1765	€690	3.73
3	48	19	€1917	€119	4.94
4	75	19	€1398	€135	3.77

Source: Nalpas et al (2003)

## **FURTHER RESEARCH**

8.5 Studies that provide direct comparisons of different drug interventions are still required. There are no studies of the added value for drugs that are seen as an adjunct to the main therapy. More information is required about treatment settings, providers and intensity of treatment in a UK context.

## SECTION NINE

## RELAPSE PREVENTION

### SUMMARY

In the previous review, the main findings relating to the effectiveness and cost-effectiveness evidence of relapse prevention were;

- psychosocial interventions can be effective and may almost double the percentage achieving abstinence or controlled drinking compared with spontaneous remission rates;
- adjunct use of Acamprosate or Naltrexone has been shown in small trials to reduce relapse rates;
- a large US study has shown health care cost savings arising from psychosocial treatments;
- studies in Belgium and Germany have demonstrated cost savings for adjunct use of Acamprosate;
- two US studies have shown outpatient treatment to be more cost-effective than inpatient treatment;
- two small studies on Behavioural Marital Therapy have produced opposite conclusions regarding cost-effectiveness; and
- using UK cost data, adjunct treatment with Acamprosate produces net resource savings but this may not result in financial savings.

The additional literature reviewed for this update broadly supports these findings. Additional points of interest are:

- no evidence has emerged to support any difference in effectiveness or cost-effectiveness between types of psychosocial intervention;
- comparisons of Acamprosate and Naltrexone are confounded by differences in length of follow up and outcomes;

More information is required on the precise content of psychosocial interventions. Savings from reduced future use of health care services need to be interpreted with care.

### INTRODUCTION

9.1 Relapse prevention programmes consist of a combination of psychosocial and pharmacological interventions aimed at maintaining abstinence or problem free drinking following detoxification.

## EFFECTIVENESS OF RELAPSE PREVENTION

### Types of intervention

9.2 The main forms of psychosocial intervention reviewed previously were cognitive-behavioural therapy (CBT), motivational enhancement therapy (MET) and 12-Step Facilitation Therapy (TSF). The current review also found additional evidence relating to Behavioural Self Control Training (BSCT) and Marital or Family Therapy.

9.3 The main forms of pharmacotherapy are Disulfiram (aversion therapy), Naltrexone and Acamprosate. Although Naltrexone and Acamprosate are both classed as anti-craving therapies they work in different ways. Naltrexone blocks the pleasant effects of alcohol, thus reducing the desire to drink and the reinforcing effects of any alcohol consumption. The effect of Acamprosate is currently linked to a reduction in tendency to relapse due to negative craving (negative effect of the absence of alcohol). No additional evidence was found relating to any other form of pharmacotherapy.

### Effectiveness of relapse prevention

#### *Psychosocial interventions*

9.4 Slattery et al (2003) reviewed all psychosocial interventions and found evidence of effectiveness for Coping/Social Skills Training (CSST), Behavioural Self-Control Training (BSCT), MET and Marital or Family Therapy. (CBT, as used in Project Match, was included in Social Skills Training.) The meta analysis results in table 9.1 show significant results for these interventions. The results include data from Project MATCH and are consistent with previous findings. There are no clear differences in the effect sizes of the different treatments.

**Table 9.1 Meta-analysis of rates of abstinence or controlled drinking**

Intervention	Odds ratio	95% Confidence Interval
Coping/Social Skills Training	2.11	(1.53, 2.92)
BSCT	1.75	(1.02, 3.02)
MET	1.88	(1.28, 2.77)
Marital/Family Therapy	1.94	(1.37, 2.73)

Source: Slattery et al (2003)

9.5 A qualitative review of marital and family interventions also reports evidence of reduced alcohol misuse, as well as better rates of entering treatment and retention in treatment (Thomas and Corcoran 2001).

#### *Pharmacological interventions*

9.6 The most recent reviews in this area are Slattery et al (2003) and Soyka and Chick (2003). Both of these reviews incorporated material published in other reviews (Kranzler and van Kirk 2001; Streeon and Whelan 2001; Mason 2001). Overman et al (2003) review studies

of Acamprosate and include the same studies as the other reviews. Srisurapanont and Jarusuraisin (2003) conducted a Cochrane Review of opioid antagonists and cover mostly the same Naltrexone studies. Additional studies in their review involve dual dependence on cocaine and alcohol, some small studies (n=10 or less in each group) and one study of Nalmefene. Compared with the psychosocial therapies, more studies have been carried out in this area since those included in the previous review (Ludbrook et al 2002).

### Acamprosate

9.7 The review by Soyka and Chick was restricted to European studies and included 16 published controlled trials of Acamprosate versus placebo. For the 13 studies for which continuous abstinence duration (CAD) could be calculated, all but one (UK) study showed a positive effect for Acamprosate ( $p < 0.05$ ). It is suggested that the lack of effect in the UK study may be due to a delay before treatment following detoxification. The review by Slattery et al included two unpublished studies with negative results but still found Acamprosate to be effective. One study that combined Acamprosate with different psychosocial therapies found no evidence of any significant difference in effect between the various types of psychosocial therapy.

### Naltrexone

9.8 Both reviews also support the effectiveness of Naltrexone. Soyka and Chick (2003) point out that the results from European studies have been less consistent than the results for Acamprosate. A meta-analysis of eight published trials found a significant improvement in relapse rates but only two of the included studies were European. The only UK trial of Naltrexone concluded that it was only effective in patients who demonstrated good compliance. Two European studies have evaluated Naltrexone in combination with different psychosocial therapies. Those receiving Naltrexone in combination with CBT had significantly fewer days of heavy drinking than those receiving a placebo (12% versus 27%;  $p < 0.05$ ) (Balldin et al 1998; cited in Soyka and Chick 2003). In the second study, Naltrexone increased the percentage never relapsing to heavy drinking in the coping skills group (26% versus 3%;  $p = 0.008$ ) (Heinälä et al 2001; cited in Soyka and Chick 2003). However, in both studies, receiving Naltrexone had no effect within the supportive counselling group. Slattery et al (2003) also concluded that Naltrexone is effective but did not recommend its use in Scotland as Naltrexone did not have a Marketing Authorisation for treatment of alcohol dependence.

### Disulfiram

9.9 Slattery et al (2003) also reviewed evidence on Disulfiram. The conclusions were similar to the previous review by Ludbrook et al (2002) and no new studies appear to have been carried out in this area.

### Comparisons of Acamprosate and Naltrexone

9.10 Kranzler and van Kirk (2001) provide an indirect comparison of Acamprosate and Naltrexone through a meta-analysis of trials of both drugs. They found no statistical difference in the efficacy of the two drugs, based on the comparisons that could be made. Slattery et al

(2003) report that the combined success rates (abstinence or controlled drinking at the end of the trial) differ between the two drugs. For Acamprosate versus placebo the combined success rates are 26% versus 18% and for Naltrexone versus placebo the figures are 51% versus 41%. However, there are systematic differences in the primary outcomes and length of follow up, as shown in table 9.2, which may explain these differences. Trials of Acamprosate are more likely to have longer follow up and all but one trial has abstinence as its primary outcome. Streeon and Whelan (2001) also drew attention to the short duration of treatment with Naltrexone (12 weeks) in the trials they reviewed and concluded that the optimal treatment period could not be determined. Two single studies have shown a decline in the effectiveness of Naltrexone in the post treatment period (O'Malley et al 1996; Anton et al 2001).

**Table 9.2 Number of trials by length of follow up and primary outcome.**

	Months of follow up		Primary outcome	
	2-6 months	9-12 months	Abstinence	Controlled drinking
Acamprosate	8 / 17	9 / 17	16 / 17	1 / 17
Naltrexone *	10 / 17	4 / 17	3 / 17	11 / 17

Source: Data taken from Slattery et al 2003 Appendix 17

\*information not available for 3 trials

9.11 Two single centre studies providing direct comparisons of Acamprosate and Naltrexone were included in the review by Soyka and Chick (2003) (Keifer et al 2003; Rubio et al 2001). Both studies favoured Naltrexone over Acamprosate, on the basis of outcomes of number of heavy drinking days or relapse to heavy drinking (5 or more drinks per day), with one study showing the combined use of both Naltrexone and Acamprosate being most effective (Keifer et al 2003). However, Rubio et al reported no difference in days to first drink. The review authors concluded that, whilst more evidence is required, it appears that Acamprosate is more suited to sustaining abstinence and treatment with Naltrexone may be indicated for patients who cannot or will not abstain (Soyka and Chick 2003). Srisurapanont and Jarusuraisin (2003) conclude that there is too little evidence to support the superiority of Naltrexone over Acamprosate.

### Population groups

9.12 Barrick and Connors (2002) review relapse prevention for older adults and report that CBT is as effective for older adults as for younger age groups. Group and family therapies are beneficial with one study reporting that older adults would prefer separate groups held at a slower pace. Only one pharmacological study specifically considered older adults, with the finding that Naltrexone was well tolerated and efficacious.

### Settings

9.13 No reviews relating to alternative settings were identified.

## **Providers**

9.14 Comparison of providers has not been carried out in any of the studies reviewed.

## **Intensity of treatment**

9.15 One UK study compared a 6 week CBT outpatient programme with a 10 week programme (cohort comparison) (Bamford et al 2003). The shorter programme had higher completion rates mainly due to the shorter period over which attrition could occur. Those who completed either programme had similar outcomes but comparisons for the whole cohort are not presented.

9.16 A statistical analysis of follow up data on individuals recruited at first contact with alcohol treatment services suggests that duration of first treatment improves outcomes at 1 year and 8 years and duration of additional treatment improves outcomes at 8 years (Moos and Moos 2003). Intensity of treatment had no effect. The analysis may have failed to control for selection bias.

## **COST-EFFECTIVENESS**

### **Psychosocial interventions**

9.17 A comparison of substance abuse treatment programmes using CBT or TSF showed that TSF increases the use of self help groups after treatment (Humphreys and Moos 2001). This is shown to reduce the use of formal health care saving \$4729 per patient ( $p < 0.001$ ). However, the self help groups are assumed to be costless.

9.18 A study of individual versus group CBT in substance abuse found similar levels of effectiveness (Marques and Formigoni 2001). No formal cost-effectiveness analysis was conducted but the group treatment used less resources.

### **Pharmacological interventions**

#### *Acamprosate*

9.19 The previous review identified two studies that had modelled the cost-effectiveness of Acamprosate. Annemans et al (2000) concluded that Acamprosate was cost saving to the health care provider, yielding average net savings of 22,000 BEF (£3,370) per patient over 24 months. However, the results were sensitive to the probability of relapse and under different conditions may not be cost saving. The authors omitted wider costs (e.g. productivity etc) and also health benefits. Schadlich and Brecht (1998) investigated the incremental cost per additional abstinent alcoholic for adjuvant Acamprosate compared to a standard care baseline and estimated overall cost savings to society of –DM 2602 (£822) per additional abstinent patient.

9.20 This review includes two further studies of Acamprosate. Palmer et al (2000) have also modelled the cost-effectiveness of adjuvant Acamprosate in Germany. The perspective of the study is the third party payer of health care costs and only medical care costs are included. Acamprosate results in a saving per patient of DM 1861 (1996 prices undiscounted; DM 1662 discounted) and an estimated gain of 1.2 life years (undiscounted; 0.52 life years discounted). The authors note that the abstinence rates for Acamprosate were taken from a single study (Sass et al 1996) rather than a review and the odds ratio for treatment effect in this study is higher than that given by meta-analysis in Slattery et al (2003) (2.87 compared with 1.73).

9.21 Rychlik et al (2003) present a comparison based on two prospective cohorts; one receiving standard care and one receiving adjuvant Acamprosate. Whilst this study design does not have the robustness of a randomised approach, the authors are using this design in order to consider whether or not the results achieved under research conditions are reproduced in normal practice. They report highly significant differences in favour of the use of Acamprosate in abstinence rates (0.324 versus 0.204), direct medical care costs (€1224 versus €1543) and total costs (€1592 versus €2004) over one year, based on intention to treat analysis. The follow up rate was 80%. The abstinence effect due to Acamprosate was similar to the levels found in controlled trials.

### **Integrated care**

9.22 A US study of the effect of integrating medical care with substance abuse treatment in an HMO setting, demonstrated a significant reduction in resource use and costs for patients with substance abuse related medical conditions (Hilton et al 2003; Parthasarathy et al 2003).

### **Inpatient versus outpatient aftercare**

9.23 A US study compared inpatient and outpatient provision for substance abuse patients (French et al 2000; McKay et al 2002). The groups were not randomised or matched. Inpatient care was demonstrated to yield higher net benefits, however inpatient care for drug abuse patients restricts opportunities for crime, which form a large component of the benefit. No separate results were presented for patients only dependent on alcohol.

## **QUALITY AND RELEVANCE OF THE EVIDENCE**

9.24 The main problem with the evidence on psychosocial interventions is the lack of standardisation in the interventions. The effectiveness depends on what is delivered and how it is delivered and this needs to be reproducible if the same results are to be achieved.

9.25 As far as the economic studies are concerned, recent studies in this area relate to substance abuse treatment rather than alcohol treatment, which is increasingly common in the US literature (see for example Salome et al 2003). These studies tend to confirm the net benefits of treatment but cannot be directly transferred to the alcohol field because it is a feature of drug addiction treatment that the reduced costs of crime dominate the benefits. The economic

outcomes based on HMO settings and other features of the US system also are not directly transferable to the UK.

## **MODELLING OF RESULTS FOR SCOTLAND**

9.26 Slattery et al (2003) have modelled the cost-effectiveness of interventions in Scotland, building on the approach in Ludbrook et al (2002). All of the psychosocial interventions show net savings when future health care costs are offset against intervention costs. These savings range from £936 (BSCT) to £2252 (CSST) per additional abstinent patient but taking account of the 95% confidence intervals on effectiveness, there is no significant difference between the treatments. The additional use of pharmacological interventions produces additional savings of £822 per additional abstinent patient for Acamprosate and additional costs of £1521 for Naltrexone but again the 95% confidence intervals overlap. Data were not available to model the use of supervised Disulfiram but results for unsupervised Disulfiram show an additional cost of £4056 per additional abstinent patient, with the 95% confidence intervals overlapping those of Acamprosate and Naltrexone. All figures are in May 2002 prices.

## **FURTHER RESEARCH**

9.27 The previous review (Ludbrook et al 2002) identified a need for further research in the areas of:

- the separate and combined effects of naltrexone and acamprosate;
- optimal treatment length;
- longer-term outcomes;
- better studies of the separate and combined effects of psychosocial and pharmacological interventions with clear description of the content of the psychosocial intervention;
- developing economic models using clinical data from the UK for wider simulations;
- using routine data from existing programmes to monitor existing treatments against research expectations.

Some studies have been identified in these areas but the research needs remain largely unmet.



## SECTION TEN OTHER ISSUES

### SUMMARY

This section reviews other issues from the literature that were not categorised by intervention type. The main findings of the previous review were;

- one study has produced a ranking of effectiveness evidence across treatment areas;
- evidence relating to workplace interventions is mixed;
- structured cognitive-behavioural interventions may be the most effective intervention in prison settings but brief interventions may work with problem drinkers;
- process of care may be an important factor in addressing specific populations groups, such as women and the elderly;
- training needs for general professional groups need to be addressed;
- costs for a general treatment programme in Scotland are provided; and
- cost-offsets from interventions vary with patient characteristics, such as age and sex.

In this review, studies were identified relating to the needs of teenagers and women. The studies address drinking context and environment for teenagers and barriers to treatment for women.

### INTRODUCTION

10.1 This section summarises literature that cuts across the interventions covered in the earlier chapters. The only studies identified related to the needs of teenagers, women and those with a dual diagnosis of mental health and substance abuse disorders.

### EFFECTIVENESS STUDIES

#### Population groups

10.2 A number of reviews have considered the requirements of particular population groups with respect to alcohol misuse.

#### *Teenagers*

10.3 Newburn and Shiner (2001) review the problems relating to underage and teenage drinking. A number of areas are recommended for change but not based on a systematic review of the evidence. These mainly relate to structural changes in the drinking environment (e.g. restricting cheap promotions; pricing of low and non-alcoholic drinks and provision of food; plentiful seating and moderate noise levels; door policies) and social or cultural changes in the context in which teenage drinking takes place.

## *Women*

10.4 Zilberman et al (2002) review gender differences relevant to treatment issues. Greater social stigma attached to substance abuse may result in less treatment seeking and deter professionals from asking about substance use. Women with substance use disorders have higher rates of psychiatric co morbidity. Some aspects of self-help groups, such as AA, may be perceived to be male oriented.

10.5 Ashley et al (2003) review the effectiveness of substance abuse programming for women, which they define as services that reduce barriers to women entering treatment or address treatment needs unique to women. The review is not specific to alcohol and of 7 RCTs included only one related to alcohol. This concerned women only outpatient and residential treatment and showed decreased alcohol use and reduced job loss compared with standard care. Thirty-one non-randomised studies were also reviewed, of which 9 make specific reference to alcohol. Overall the components with some evidence of impact on effectiveness were childcare; prenatal care; women only; supplemental services (such as education); mental health services; and comprehensive integration of women's needs into service programming. Some findings may have more relevance to other substances; for example, the finding that women having residential treatment stay in treatment longer if their children are with them may have limited implications for alcohol treatment which is mainly delivered on an outpatient or community basis with any residential stays typically being short.

## *Dual diagnosis*

10.6 Judd et al (2003) report the outcomes and costs of a dual diagnosis project. A before and after study of integrated treatment for 126 patients showed improved outcomes. Increases in mental health and physical health care costs were offset by savings in criminal justice and substance abuse treatment costs. Only 46% of the group studied were considered to be alcohol dependent and separate results are not given for this group.

## **SECTION ELEVEN CONCLUSIONS AND RECOMMENDATIONS**

### **INTRODUCTION**

11.1 This report has reviewed additional evidence on the effectiveness and cost-effectiveness of interventions aimed at reducing alcohol misuse. In this section, the main findings are summarised, with particular emphasis on evidence that confirms previous conclusions or is additional. The implementation issues and recommendations from the previous report are then considered in terms of any changes that follow from the additional evidence reviewed.

### **REVIEW CONCLUSIONS**

#### **Summary of available evidence**

##### *Effectiveness*

11.2 The main findings relating to interventions that are supported by the evidence base are summarised in table 11.1. In terms of the effectiveness review, there is a strong and relevant evidence base to show that:

- the use of price increases, via taxation, and brief interventions will reduce the number of problem drinkers;
- effective screening tools to detect problem drinkers are available (CAGE and AUDIT);
- detoxification services and relapse prevention, through appropriate psychosocial and pharmacological treatments, are effective.

11.3 There is evidence that legislative interventions to reduce permitted blood alcohol levels for drivers, to raise the legal drinking age and to control outlet density have been effective but this evidence relates mainly to the US. There is no certainty that the results would transfer to the UK, where there is a different cultural attitude towards alcohol. Evidence from the US and Australia supports the effectiveness of random breath testing of drivers but similar arguments may apply. There is no clear evidence of effectiveness relating to prevention of alcohol misuse, mainly because of the weaknesses of the research carried out. Some effects on knowledge and attitudes have been found but none relating to drinking behaviour. There is some evidence that community action may reduce drink related problems.

##### *Cost-effectiveness*

11.4 The cost-effectiveness review found evidence to support the cost-effectiveness of:

- brief interventions;
- home and outpatient detoxification;
- outpatient treatment for relapse prevention; and
- the use of psychosocial interventions and Acamprosate as an adjunct treatment in relapse prevention.

11.5 None of the costs were taken from UK settings but the results for brief interventions and for Acamprosate have been confirmed using UK cost data. More recently, the cost-effectiveness of psychosocial interventions, Acamprosate and Naltrexone have been modelled for Scotland. In general, regardless of the country setting, home treatment and outpatient treatment are likely to be cost-effective alternatives to inpatient treatment provided that they are at least as effective. The only UK cost-effectiveness result related to the relative cost-effectiveness of specialist workers in screening for alcohol misuse in a general hospital setting. The cost-effectiveness of random breath testing and server training programmes depends upon the cost-offsets achieved, and these may be lower in the UK than in the US settings in which these studies took place. One Australian study has shown that thiamine supplementation of full strength beer is cost-effective in the prevention of Wernicke-Korsakoff syndrome.

### *General issues*

11.6 Interventions that do not appear in table 11.1 are not necessarily ineffective but no strong evidence to support them has been found in the review. The size and strength of the evidence base is very variable but it is apparent that interventions are required across all areas. The different types of intervention are not substitutes for each other but tackle different aspects of the alcohol misuse problem. There is much less evidence about cost-effectiveness than effectiveness.

11.7 The update of the previous review has identified a reasonable number of additional studies but the majority of these have confirmed previous findings rather than presenting new information. The extent and quality of the research continues to vary between types of intervention. Treatment interventions have been subject to the most rigorous evaluations and the literature contains a number of meta-analyses of well-conducted randomised controlled trials. There is a large volume of research in the area of prevention but the study designs and the resulting evidence are weak. Policy interventions and the effects of legislation and enforcement have been less well researched.

11.8 The volume of cost-effectiveness literature is much smaller and is strongest in the areas of brief interventions and relapse prevention. A weakness of this area is that most studies have not been conducted alongside effectiveness studies but have modelled results based on values obtained from the literature. Few studies have addressed the health benefits of interventions with the result that outcomes in terms of cost per life year are rarely produced in the literature.

### **Main gaps in the evidence base**

11.9 The gaps in the evidence base that were reported in the previous review have been updated within each section. There remains a particular lack of sound evidence, applicable to the UK, in the area of policy, legislation and enforcement. More attention requires to be given to evaluating alcohol initiatives in the UK and these evaluations should be planned at an early stage in the development of an initiative. Despite a plethora of research, the evidence relating to prevention is weak and better research designs are required. In screening and treatment, there is

a sound basis of evidence for a number of interventions but additional research would be beneficial. In all areas, there is a need for better economic studies.

## **IMPLEMENTATION ISSUES**

11.10 The previous report argued that the results of the evidence review should be interpreted alongside information about interventions that are already taking place. Both the impact which interventions will have upon strategic targets and the resources required to implement interventions will depend upon the extent to which they have already been deployed. It should also be noted that the effectiveness of these interventions has been demonstrated in research settings and requires to be confirmed in routine practice. Arrangements for auditing or monitoring the effectiveness of interventions will need to be put in place.

## **RECOMMENDATIONS**

11.11 On the basis of the evidence reviewed previously, the following recommendations were made:

- the introduction of a brief intervention programme where this is not already provided;
- the development of monitoring arrangements to assess the impact of these interventions at the national level;
- improved access to treatment and relapse prevention; and
- the use of cost-effective alternatives, such as home detoxification, where appropriate.

These recommendations are unchanged as a result of the update to the review. In addition, **it is recommended that:**

- more detailed consideration be given to the evidence relating to community action and the potential for community based programmes to prevent alcohol related problems.

## **Research Strategy**

11.12 The previous report drew attention to the need for a more focussed use of research capacity and more accessible results and made the following specific recommendations:

- the prioritisation of policy evaluation and prevention as the areas requiring most development of the evidence base;
- better co-ordination of research effort with resources concentrated on fewer larger studies with longer term follow up;
- better knowledge management in terms of access to relevant research results;
- the fostering of an evaluation culture amongst those responsible for delivering services, focussed on outcomes and the monitoring of effectiveness; and
- guidelines for evaluation to assist in this process.

These recommendations are unchanged as a result of the update to the review.

**Table 11.1 Summary of Findings**

	<b>Effectiveness evidence supports</b>	<b>Cost-effectiveness evidence supports</b>	<b>Comments</b>
<b>Policy and legislation</b>	<b>Price increases via taxation</b>		<i>Additional evidence relating to effect on heavy drinkers and youth.</i>
	<b>Lower permitted blood alcohol levels; raising legal age for drinking; lower outlet density</b>	<i>Lower blood alcohol levels for young and inexperienced drivers</i>	Evidence not from UK
<b>Enforcement</b>	<b>Random and selective breath testing of drivers</b>	<b>Random and selective breath testing of drivers</b>	Studies from US, <i>Australia</i> and <i>The Netherlands</i> . Cost data may not apply to the UK.
		Server training programme	US study implies cost data may not apply.
<b>Prevention</b>	No convincing effects have been demonstrated on drinking behaviour.	<i>Family focussed adolescent substance-use prevention</i>	Evidence of effect on knowledge and attitudes from mass media campaigns. Weak evidence of effect on knowledge from school-based interventions.
	<i>Community action can reduce drink related problems</i>	Thiamine supplementation of full strength beer to prevent Wernicke-Korsakoff syndrome	Australian study
<b>Screening and detection</b>	CAGE and <b>AUDIT</b> as screening tools for general populations	<i>FAST screening in A&amp;E</i>	<i>Small UK study. Costs from one centre.</i>
		Use of specialist workers for screening in a general hospital setting	UK study. Nursing staff were less cost-effective but may be used more flexibly.
<b>Brief interventions</b>	<b>Brief interventions in a range of research settings</b>	<b>Brief interventions</b>	No cost data from UK studies implies cost-offsets may not be high. <i>Effect sustained to 4 years.</i>
<b>Detoxification</b>	Benzodiazepines as first choice therapy		
		Home and outpatient detoxification	
<b>Relapse prevention</b>	<b>Psychosocial interventions</b>	<i>Psychosocial interventions</i>	<i>Model using Scottish data</i>
		Outpatient treatment	
	<b>Naltrexone and Acamprosate as adjunct treatments</b>	<b>Acamprosate as an adjunct treatment</b>	Cost data from Belgium and Germany but results confirmed when modelled with UK and <i>Scottish</i> data.
		<i>Naltrexone not significantly different from Acamprosate</i>	<i>Model using Scottish data</i>

Note: Results from previous review confirmed by additional evidence appear in **bold type**. Results from previous review for which no additional information was found appear in plain type. New information appears in *italics*.

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