Effectiveness Bulletin

Brief interventions and alcohol use

N Freemantle, P Gill, C Godfrey, A Long, C Richards, T A Sheldon, F Song, J Webb
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Drinking alcohol brings considerable pleasure to many people, however many problems are associated with its use, among them raised mortality and morbidity, including that from liver disease as a result of long term heavy drinking; accidents related to acute intoxication; violent or antisocial behaviour; and short term sickness absence. Alcohol consumption is estimated to lead to around 28 000 deaths each year in England and Wales.¹ The cost of sickness absence associated with alcohol consumption was calculated as £779m in Britain in 1989 and the costs to the NHS estimated in excess of £120m.² Over 3000 deaths each year in England and Wales result from chronic liver disease, cirrhosis, and other direct causes of alcohol poisoning; if the current trend continues the number will increase to over 4000 deaths by 1995.³ Several other medical conditions are associated with alcohol consumption. For example, the risk of cardiovascular and gastrointestinal diseases and psychological problems rises with increasing consumption.⁴⁻⁵ Some evidence indicates that two units of alcohol a day in men may in fact confer some protection against coronary heart disease, although this is debated,⁴⁻⁶⁻¹² and any specific protective effect for coronary heart disease is likely to be rapidly overwhelmed even at relatively low consumption by the increasing morbidity and mortality from all causes. The incidence of problems related to alcohol, including cardiovascular disease, increases with higher consumption.

Alcohol consumption is associated with a significant number of accidents.¹³ Around a third of motorists killed in road traffic accidents have over the legal alcohol limit in their blood, rising to 60% of drivers between the hours of 11 00 pm and 4 00 am.¹⁴ Alcohol consumption is also related to accidental deaths from other causes,¹⁵ and chronic alcohol use dramatically increases the risk of complications after trauma.¹⁶

Figures 1 and 2 show the levels of alcohol consumption for women and men aged over 16 years in England and Wales.¹⁷ The pattern of drinking varies considerably among individuals. Alcohol consumption is highest among young adults and increases with income, and drinking behaviour varies culturally.¹⁸ Figure 3 shows the regional variation in the reported death rate from chronic liver disease and cirrhosis in England and Wales.

In Britain health policy has been directed towards encouraging "sensible drinking," although there is no clearly distinct "high risk group" because the risk rises continuously with consumption. However, it has been useful for policy purposes to define arbitrary recommended limits. Currently these are weekly limits of 21 units in men and 14 units in women (see box). People drinking more than the recommended limits have been referred to as *hazardous* drinkers, when they

One unit of alcohol is approximately:

- Eight grams of pure alcohol
- Half a pint of ordinary strength beer or lager
- One glass of wine
- One pub measure of spirits

Fig 1 Alcohol consumption in women aged over 16 years, England and Wales¹⁷

Fig 2 Alcohol consumption in men aged over 16 years, England and Wales¹⁷

Centre for Health Economics, University of York, York YO1 5DD

N Freemantle, research fellow

C Godfrey, senior research fellow

T A Sheldon, senior research fellow

F Song, research fellow

Centre for Research in Primary Care, University of Leeds

A Long, senior lecturer

J Webb, research assistant

Nuffield Institute for Health, University of Leeds

C Richards, senior registrar in public health medicine

Leeds Health Care

P Gill, research tutor

Correspondence to: Mr Freemantle

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Fig 3 Death rates from chronic liver disease and cirrhosis in adults aged over 15 years, England and Wales, by region²

are at raised risk but currently experiencing no problems as a result of alcohol consumption, and *harmful* drinkers when problems are present.

The *Health of the Nation* sets a target of reducing the proportion of men consuming more than 21 units of alcohol a week from 28% to 18% and the proportion of women consuming more than 14 units of alcohol a week from 11% to 7%, by the year 2005.¹⁹

Identifying harmful or hazardous drinkers

Several methods may be used to identify harmful and hazardous drinkers, including questions relating to consumption, "drinking diaries," questionnaires, physical examination, and biological markers, which may be used alone or in combination. Nearly all instruments were developed to detect alcoholism and not to screen for lower levels of consumption.

Several questionnaires have been used as screening instruments but their validity and reliability are difficult to compare because they have been used for different purposes and in different settings and populations.²⁰⁻³¹ The recently developed AUDIT questionnaire containing 10 items covering alcohol consumption, symptoms, and consequences of alcohol use,³¹ is of particular interest because it was designed to detect harmful or hazardous drinking and was validated cross nationally in primary and ambulatory care. Initial estimates indicate that it detects 92% of harmful or hazardous drinkers (sensitivity) and 94% of people below the limits are correctly identified (specificity),³¹ but it needs to be validated in the United Kingdom.

Settings for detecting harmful or hazardous drinkers

As some of the questionnaires described above are quick and easy to use and as over two thirds of the population consult their general practitioner (GP) each year,³² it is possible to identify harmful or hazardous drinkers in

primary care routinely. The use of a screening instrument can lead to substantial improvements in identifying people with alcohol problems, an 80% increase in the number of patients identified being reported in one practice.³⁰ Similarly, because of the availability of relatively cheap and brief interventions there is considerable scope for activities aimed at reducing alcohol consumption in primary care.³³ However, GPs vary in their opinion of what they consider to be safe levels of consumption³⁴ and many are reluctant to deliver alcohol reducing interventions. In a study in 1985 only 40% felt motivated to work with harmful or hazardous alcohol users³⁵; in recent survey of 5000 adults, only 2% reported any discussion relating to alcohol use with their GP or any member of the practice staff in the previous 12 months (Health Education Authority, personal communication).

As harmful and hazardous drinkers are overrepresented among adult patients of all ages admitted to hospital^{4 36} opportunistic screening for drinking in this setting will probably detect a considerable number. Around 20% of adult patients (10% of men over 65 years) admitted to general hospital settings may be classified as harmful or hazardous drinkers and may not be detected unless specifically screened.³⁶⁻⁴²

Evaluating effectiveness of interventions

Various brief intervention techniques have been described, and because of their similar short duration and other common core features they are considered together.⁴³ All brief interventions contain an assessment of alcohol intake, information on harmful and hazardous drinking, and clear advice for individual subjects. Brief intervention sessions are often accompanied by information booklets and details of further resources available locally. Specialist interventions include more intensive strategies which include assessment and advice, but with counselling or therapy sessions, skills training, and other interventions, occasionally on a group basis or as an inpatient.

Well designed randomised controlled trials provide the best available evidence of the efficacy of therapeutic interventions.⁴⁴ Twenty nine such trials were identified (by *Medline* search, consultation with clinical experts, and manually cross checking reference lists) in which brief interventions were compared with an assessment only control group, more specialist strategies, or a combination of these approaches.⁴⁵⁻⁷³ (Details of these trials are given in Appendix 1, *Effective Health Care No 7*, 1993.)

Several difficulties are encountered in defining and measuring relevant outcomes in trials of interventions to reduce alcohol consumption: various outcome measures are used, few trials directly measure health outcomes, and most use patient reported changes in alcohol consumption as the primary outcome measure, even though there is doubt about the reliability of self reported behaviour changes.^{74 75} Though reliable measures of

alcohol consumption may provide a convenient proxy measure for risk related to alcohol, the relation between alcohol consumption and morbidity for individuals and populations is complex and uncertain.^{18 76} In addition, because follow up is short it is difficult to use the data from trials to estimate longer term impact on health status. Also, the trials include patients whose alcohol consumption is considerably above the targets in the *Health of the Nation*, and to what extent the findings from this group may be translated to the broader population drinking above target levels is unclear.

The quality of trials is variable. Areas of concern include lack of blinding of assessors to the patients' treatment group; high dropout rates from treatment programmes and loss to follow up; and the outcome measures used. Because assessment is an important element in brief interventions and may itself improve outcome, assessment of patients in the control group may result in trials underestimating the effectiveness of interventions. Furthermore, comparison and synthesis of the trials is hindered by the heterogeneity of the populations studied, different or poorly defined interventions, and different outcome measures, and this is particularly true for trials comparing brief treatments with specialist treatments.

Trials of brief interventions

Seven randomised controlled trials were identified which compared brief intervention with an assessment only control group^{45 49 56 60 68 70 72}; two are large and of particular interest.

Wallace *et al* randomly allocated 909 patients from 47 group general practices in Scotland and England to either brief intervention or assessment only.⁷⁰ Patients with potentially harmful or hazardous alcohol consumption were detected on the basis of the CAGE questionnaire and questions on frequency of drinking and consumption. Men included in the trial consumed more than 35 units of alcohol a week and women more than 20 units a week; 30% of subjects in the trial were women.

Patients randomised to the control group received no specific advice concerning their alcohol consumption unless they had evidence of substantial liver damage. Patients in the treatment group were contacted by their GP and asked to attend for a brief interview. Only 61% of those invited for interview on the basis of the screen attended. At interview the brief intervention included assessment of alcohol consumption, alcohol related problems, and dependence and compared the patients' reported drinking with a histogram of the population's drinking habits. Patients were advised of the potentially harmful effects of their current level of consumption and given an information booklet. Men were advised to drink no more than 18 units a week and women no more than nine units a week, unless alcohol dependency was evident, in which case GPs had been advised to suggest abstinence.

Follow up appointments at one month were given routinely, and occasionally at four, seven, and 10 months. Attendance for men was better among lighter drinkers and older patients. Over 80% of men and women attended for an assessment interview at one year, when they were assessed independently by a practice nurse who was not aware of their treatment group.

A 21% reduction in alcohol consumption was recorded among men receiving brief intervention compared with that in the control group, and a slightly larger response was recorded among women. The results were supported by parallel reductions in biological markers of alcohol consumption.

The second multicentre trial of brief intervention in primary health care sponsored by the World Health Organisation assessed the effectiveness of brief interventions in various populations in 10 centres around the world from developing and developed countries.⁷² Results from only the eight centres which used a randomised design are considered further. In total, 1490 patients, mostly from primary or ambulatory care were randomised. Patients were included if their alcohol consumption averaged >44 units a week (men) or 28 units a week (women) or if they drank excessively (>12.5 units on one occasion two or more times per month in men or 8 units in women). Patients with slightly lower reported consumption were also included if they expressed concern about their drinking; those showing signs of dependence on alcohol, those having received previous treatment for alcohol problems, or those with unstable social circumstances were excluded. Patients in the control group received only assessment and those allocated to a treatment group received either 20 minutes' simple advice, in which they were advised of the potential harm from their drinking behaviour and given an information booklet, or 20 minutes' simple advice plus up to four additional 15 minute brief counselling sessions, which included the use of a 30 page problem solving manual.

The analysis showed no additional advantage for the brief counselling sessions. Significant reductions in alcohol consumption or frequency of drinking were found at five centres (Australia, United Kingdom, former Soviet Union, United States, and Zimbabwe) for male drinkers in the intervention groups compared with the control group. Overall, male patients receiving simple advice, with or without brief counselling reduced their alcohol consumption by nearly a quarter compared with the assessment only group. For women the response to intervention was lower, with only around a 10% reduction in the treatment groups when compared with assessment only. However, alcohol consumption was considerably reduced in both the control and intervention groups.

Four more, but much smaller, trials^{45 49 56 68} were assessed as comparable with those of Wallace *et al*⁷⁰ and WHO.⁷² To obtain the most precise estimate of the effect of brief intervention the results of these six trials were

pooled using formal meta-analysis.^{77 78} Overall, the effect of brief intervention was estimated to be a 24% reduction in alcohol consumption (95% confidence interval 18% to 31%).

Brief intervention versus specialist interventions

Thirteen studies comparing brief intervention with specialist treatments (that is, inpatient or outpatient care, extended counselling, etc) were identified,^{48 51 52 61 62 65 66 72 73} but owing to use of many different interventions implemented in various settings and different populations, these trials were not sufficiently comparable to be pooled sensibly in a formal meta-analysis. A less formal overview of these studies showed no evidence of any extra benefit of the more specialist interventions compared with brief intervention. However, this is a general conclusion, and it is argued that matching treatments to the individual needs of particular subgroups of patients may improve effectiveness,⁷⁹ although this has yet to be clearly shown. When brief interventions are unsuccessful, more specialist interventions may prove effective or cost effective; however, more research is needed to verify this.⁸⁰

Several approaches exist for reducing problems related to alcohol in the population. One strategy is aimed at treating those who have very high consumption (high risk approach); an alternative is aimed at the whole population which contains a large group of people with more modest consumption and attempts to shift the whole distribution (population approach). The logic of the population approach is that a larger proportion of the total morbidity and mortality attributed to alcohol in a population is due to the considerable number of people with more modest consumption, even though individually they are at lower risk.^{76 81} These two approaches are not incompatible in that it has been argued that the population mean predicts the prevalence of rates of high alcohol consumption^{18 82} and thus a fall in mean alcohol consumption may lead to a corresponding decrease in the number of very heavy drinkers. In addition, low cost and effective methods exist for identifying and treating the significant group of people who consume above the currently recommended limits but who are not necessarily dependent on alcohol.

Costs and cost effectiveness of brief interventions

The exact relation between percentage reductions in alcohol consumption and the effects on population morbidity and mortality is not known either at an individual or at a population level. Comparing the cost-effectiveness of brief interventions directly with other health care procedures is therefore impossible. In this section some costs of reducing alcohol consumption in line with targets in *Health of the Nation*¹⁹ are presented.

The box shows the direct and associated costs of brief opportunistic interventions in either GP or hospital setting.

Costs and potential savings from brief interventions

Direct costs

Time of professionals administering the screen and intervention
Materials used in the intervention

Associated costs

Staff training
Mechanisms to encourage staff to intervene routinely (for example, dissemination of materials or incentives)
Support services
Increased referral to specialist services (appropriate and inappropriate)

Savings

Reduction in future use of health care services owing to reduced morbidity resulting from decline in alcohol consumption

Studies in the United States suggest that the cost of specialist alcohol treatment may be offset against reductions in future health care spending owing to the reduced problematic and hazardous alcohol consumption.^{83 84} However there is no evidence for the extent to which this may translate to the situation in the United Kingdom.

The direct costs of brief interventions for alcohol will depend on the screening instrument; the method of delivery (that is, opportunistic delivery or through special appointments); who delivers the intervention (that is, a GP or practice nurse, hospital doctor, or ward staff); and the content of the intervention. For both screening and intervention the main component of cost is professional time. Cost estimates depend on whether the figure includes estimates for overheads and administrative costs or is based on the cost of the face to face time alone. The cost of GPs' time (at 1993 prices) would be in the range £0.40 (based on salary) to £1.20 per minute (including overheads).⁸⁵ Tolley and Rowland calculated that the costs of nurses' time to administer a simple screen, taking on average 1.5 minutes in a general hospital setting, was 10p at 1988 prices.⁸⁶ However, 40p is taken as a lower boundary in the following calculations and the screen is assumed to take two minutes, giving a cost estimate of between 80p and £2.40 per person screened. The duration of brief interventions varies, but for costing purposes an average of 15 minutes has been used.⁷⁰ Using the same estimates of the cost of professional time will yield costs between £6 and £18 for the time component. Costs of booklets or educational leaflets which may be distributed to the patient are assumed to be no more than £2 per patient, giving a total direct cost for each brief intervention of between £8 and £20.

Costs and effectiveness

The delivery of brief interventions in actual settings can vary considerably. For some GPs it may be decided to deliver both the screening and interventions opportunistically (as and when patients consult a doctor). This is also the mode in which it can be delivered in

hospitals. In both cases nearly 100 per cent coverage of those identified by the screening instrument may be achieved.

If average drinking behaviour is assumed, for each 100 men and 100 women screened, 28 men should be identified as drinking above the recommended units of alcohol and 11 women. Using the reported specificity and sensitivity for the AUDIT questionnaire³¹ suggests that a total of 46 people would be given the intervention (36 true positive and 10 false positive), resulting in a cost between £15 and £40 for each person with raised consumption (36 of the initial 200 screened). On average each of these may reduce consumption by 24 per cent.

For GPs it may be difficult to screen and administer the intervention opportunistically in the same session. However, because only a proportion of patients invited back for a special intervention will take up this offer (possibly as little as 60%⁷⁰) the costs per person who reduced drinking increase slightly to between £18 and £47 (based on only direct costs). In hospital, costs may not only be lower but there may be a higher proportion of patients drinking above the designated limits than in the general population, both effects lowering the cost-effectiveness figure, though less of the population will be screened.

Other cost effective strategies

Brief interventions are only one policy option available to achieve targets set out in *Health of the Nation*.¹⁹ Macro policy measures such as increasing tax on alcohol, advertising controls, and reducing the number of outlets for alcohol all reduce alcohol consumption.⁸⁷ The price elasticity of the different types of alcoholic drink estimated by the Treasury, for example, suggests that a one per cent increase in price will reduce per capita alcohol consumption by one per cent (Department of Health, personal communication). Many other national and local measures could also reduce the mortality and morbidity associated with alcohol – for example, drink driving campaigns.⁸⁸

Advice to commissioners of services and research

The high prevalence of alcohol related health problems and its implications for NHS resources mean that commissioners should be aware of the importance of alcohol when planning services. The opportunistic use of simple assessments and brief interventions carried out routinely in primary care and hospital settings should be considered. Routine opportunistic detection and treatment will not be feasible unless well planned and coordinated, adequately resourced, with more specialist support services. The danger is always that increasing health service interventions to influence people's behaviour can result in stigmatisation of people whose lifestyles are not approved. The social character of drinking and its importance to many people are important to acknowledge, and interventions to reduce alcohol consumption should occur within a non-judgemental, non-

moralistic framework which is tolerant of diversity.

An effective health care strategy will need to include a balance of treatment activities with other policies, such as those focused on specific risk behaviours such as drinking and driving, occupational health strategies in the work place, regulation, and proscription of advertising and taxation.

Finally, research is needed in the following:

- Validating the AUDIT questionnaire³¹ in Britain as a simple screening instrument for hazardous and harmful alcohol consumption
- Evaluating the longer term impact of opportunistic brief interventions on health related outcomes in primary and secondary care (most reliably by randomised controlled trials)
- Examining the cost effectiveness of using different professionals to undertake screening and treatment in various settings
- Assessing the effectiveness and cost effectiveness of specialist treatments for different subgroups of harmful and hazardous drinkers who have not responded to brief interventions
- Developing an accurate epidemiologically based health policy model which estimates the health impact of reductions in alcohol consumption in different population groups.

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