

Health sector responses

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Introduction

Up to 2006, a large amount of high-quality evidence had accumulated to support the effectiveness of health sector interventions in reducing alcohol-related harm (Anderson & Baumberg, 2006; Miller & Wilbourne, 2002). The largest and most robust body of evidence related to preventive interventions, particularly brief alcohol interventions. In 2006, there were 14 systematic reviews (with or without meta-analyses) which assessed the impact of brief interventions on reducing alcohol consumption, some of which also considered their impact on ameliorating alcohol-related problems. The most comprehensive review included 56 controlled trials (Moyer et al., 2002) and encompassed a wide range of delivery settings and patients who were either not aware of their alcohol-related risk or harm (non-treatment-seekers) or aware and seeking help for problems (treatment-seekers). Thirty-four trials focused on non-treatment-seekers and reported that brief interventions produced small to medium aggregate effect sizes (range 0.14 to 0.67) over a range of time points. For the 20 trials that focused on treatment-seekers, the overall brief intervention effect size was not significantly different from zero (range -0.02 to 0.4). The modal follow-up time was 1 year and there was mixed evidence of longer-term effects, with positive outcomes reported at 4 years in the United States (Fleming et al., 2002) but not at 10 years in Australia (Wutzke et al., 2002). There was also evidence that brief intervention could reduce mortality (Cuijpers, Riper & Lemmers 2004) and other alcohol-related problems (Moyer et al., 2002; Richmond et al., 1995). The number needed to treat was between 8 and 12 for hazardous and harmful drinkers (Ballesteros et al., 2004). This is the number of at-risk drinkers who needed to be offered brief interventions for one to show benefit in terms of reduced drinking levels or fewer alcohol-related problems.

Most of this brief intervention research was based in primary care, where the evidence of a positive impact was strongest (Ballesteros et al., 2004; Bertholet et al., 2005; Whitlock et al., 2004). WHO's CHOosing Interventions that are Cost Effective (CHOICE) model estimated that delivery of primary care-based brief interventions to 25% of the at-risk population throughout Europe could prevent around 408 000 years of disability and premature death at an estimated cost of €740 million each year (Chisholm et al., 2004). Just one systematic review focused on emergency care, and this reported 27% to 65% reductions in a range of trauma and injury measures (Dinh-Zarr et al., 1999). Less evidence was available for other settings but individual studies showed a beneficial impact of brief interventions targeting pregnant women (Handmaker, Miller & Manicke, 1999; Handmaker et al., 2006). There was also evidence that home-visit interventions could reduce harmful alcohol use in pregnancy (Grant et al., 2005). Regarding occupational health settings, there was evidence that brief interventions could reduce alcohol consumption in those experiencing the intervention (Richmond et al., 2000) and that a brief eight-hour training programme reduced problem drinking from 20% to 11% and linked absenteeism from 16% to 6% (Bennett et al., 2004).

Regarding alcohol treatment, the strongest evidence was reported for behavioural skill training and pharmacotherapy interventions (Miller & Wilbourne, 2002). Areas with less impact were 12-step facilitation, group psychotherapy, educational lectures and films, mandatory attendance at Alcoholics Anonymous meetings and general alcoholism counselling.

Recent evidence

A great deal of evidence has emerged since 2006 (WHO, 2009; Babor et al., 2010; Babor et al., *in press*), particularly relating to brief interventions in non-treatment-seekers (Table 1). In the last five years, three further systematic reviews have focused on primary care (Kaner et al., 2007; Littlejohn, 2006; Saitz, 2010), two on emergency care (Havard, Shakeshaft & Sanson-Fisher, 2008; Nilsen et al., 2008), one on general hospital settings (McQueen et al., 2011) and two on obstetric or antenatal care (Doggett, Burrett & Osborne, 2009; Stade et al., 2009). Most reviews included delivery of brief interventions by doctors, but a recent review focused on non-physician delivery (Sullivan et al., 2011). Two further systematic reviews specifically considered economic outcomes (Bray et al., 2011) and impact on co-morbid conditions (Kaner, Brown & Jackson, 2011). Other relevant systematic reviews considered motivational interviewing across some behaviour patterns (Lundahl et al., 2010) and brief interventions beyond the health sector to educational and/or community settings (Peltzer, 2009; Tripodi et al., 2010). Across this wide body of work, it has been reported that brief interventions have consistently reduced the quantity, frequency or intensity of drinking (Kaner et al., 2007). The beneficial effects of brief interventions continued to be particularly strong in primary care (Kaner et al., 2007). Brief intervention outcomes in emergency care, general hospital settings and obstetric or antenatal care were more equivocal, with both positive and null findings. An enduring theme was that brief interventions relating to alcohol have a greater impact on non-treatment-seeking patients compared to treatment-seekers in specialist settings (Kaner, Brown & Jackson, 2011). Delivery by a range of practitioners has beneficial effects, although the size of these effects was greater when doctors were the deliverers (Sullivan et al., 2011). Moreover, brief interventions have been found to reduce overall health costs but not subsequent inpatient or outpatient utilization of health services (Bray et al., 2011). Nevertheless, a recent comprehensive overview of systematic reviews in this area, conducted for the National Institute for Health and Clinical Excellence in England, concluded that screening together with brief interventions for alcohol was a highly cost-effective strategy for health sector organizations (Latimer et al., 2010).

Most of the brief intervention evidence base has focused on adults rather than young or elderly people. In addition, a recent WHO review concluded that this evidence base has limited applicability to low- and middle-income countries (Babor et al., *in press*). One innovation in this field which may help to extend the reach of brief interventions is the development of computerized or web-based approaches (e-interventions). A key feature of these e-interventions is that they may help to target younger people who tend not to present to health settings, and they may be used in contexts where health services are not fully developed. Nine recent systematic reviews have considered e-interventions (Bewick et al., 2008; Carey et al., 2007; Carey et al., 2009; Elliott, Carey & Bolles, 2008; Khadjesari et al., 2010; Moreira, Smith & Foxcroft, 2009; Riper et al., 2009; Rooke et al., 2010; White et al., 2010) and reported that they generally produce beneficial outcomes compared to controls who receive no interventions but rarely compared to other active interventions (Carey et al., 2009). Thus directly delivered, individually focused brief interventions are likely to yield more positive effects compared to indirectly delivered e-interventions. The latter do, however, have a promising reach into groups that are hard to access and have a relatively low cost once the initial intervention development work is completed.

An enduring finding from the brief intervention literature is that there is little evidence to suggest that longer or more intensive input provides additional benefit over shorter, simpler input (Kaner et al., 2007). So while personal contact may be important, the length, complexity and intensity of the intervention are likely to be less so. Moreover, two recent systematic reviews focused on the

Table 1. Systematic reviews since 2006 focused on brief interventions in the health sector

First author, year	Setting	No. of trials	Conclusions
Bernstein, 2010	Health	38	Meta-analysis of 16 trials found consistent drinking reductions in control groups (effect size 0.37).
Bewick, 2008	E-intervention	5	Evidence on the effectiveness of e-input was inconsistent. Web-based input was generally well received.
Bray, 2011	Health	29	Meta-analysis of 11 trials found no significant effect on outpatient or inpatient health care use.
Carey, 2007	Colleges	62	Face-to-face input of motivational interviewing and personalized normative feedback produce greater reductions than no-input controls.
Carey, 2009	E-intervention; colleges	35	E-intervention was beneficial compared to assessment-only controls but not compared to active comparators.
Doggett, 2009	Obstetric care	6	There was insufficient evidence to recommend routine home visits for women with alcohol/drug problems.
Elliot, 2008	E-intervention; colleges	17	E- input rarely produced greater effects than alternative alcohol risk reduction interventions.
Havard, 2008	Emergency care	10	Meta-analyses of direct and e-interventions showed that they did not significantly reduce consumption but that they reduced the odds of injury (odds ratio (OR): 0.59; 95% confidence interval (CI): 0.42–0.84).
Jenkins, 2009	Health and educational	22	There was a general but inconsistent trend for reduced drinking in control groups, and the effect was greater in anglophone countries.
Kaner, 2007	Primary care	29	Meta-analysis of 29 trials found significantly reduced consumption, particularly in men. Longer interventions had little additional benefit.
Kaner, 2011	Health	14	The review focused on co-morbidities and found positive outcomes for substance use and physical health (3 trials) but not substance use and mental health (8 trials) or dual substance use (3 trials).
Khadjesari, 2010	E-intervention; colleges	24	Meta-analysis of 19 trials found computer-input more effective than no-input controls. Few studies compared e-input with active comparator groups.
Lundahl, 2010	Health and social care	119	Meta-analysis of 68 alcohol trials found that motivational interviewing produced a significant impact compared to weak comparators (effect size 0.28) but not compared to other active treatments (effect size 0.09).
McQueen, 2011	Hospital settings	14	Meta-analysis of four trials found beneficial but time-limited effects of brief interventions with hospital inpatients.
Moreira, 2009	E-intervention; colleges	22	Web and individually focused feedback gave a short-term positive effect compared to controls but not when compared to each other. There were null effects for mail or group feedback and social norms marketing campaigns.
Nilsen, 2008	Emergency care	14	Most trials found positive effects on one or more outcomes. More intensive brief interventions yielded better effects. Five trials had null effects against active treatments.
Peltzer, 2009	Health, school, community	7	A small number of studies found a positive health sector impact. Community-setting outcomes were promising but brief interventions were usually combined with HIV counselling.
Riper, 2009	E-intervention; community	14	Single-session personalized-feedback had positive but modest effects. Eight internet trials had a broad reach.
Rooke, 2010	E-intervention; colleges	34	In 28 alcohol trials, e-interventions reduced alcohol use (effect size 0.22) with low cost.
Saitz, 2010	Primary care	16	There was a positive impact on unhealthy alcohol use, but not for patients with very heavy use or dependence.
Stade, 2009	Antenatal care	4	No meta-analysis was made and no significance was reported between group differences for most outcomes. There was little impact on health.
Sullivan, 2011	Health	13	A meta-analysis of six trials found a positive impact of non-physician input but the effect (1.7 fewer drinks per week) was greater when physicians made the input (2.7 fewer drinks per week).

First author, year	Setting	No. of trials	Conclusions
Tripodi, 2010	Health, social, educational	16	Psychosocial inputs were effective at reducing alcohol use (effect size - 0.61). Individual inputs had a larger effect (-0.75) compared to family inputs (-0.46).
Vasilaki, 2006	Health, social, educational	22	A meta-analysis of 15 trials found a significant small impact compared to controls where there was no input (effect size 0.18) and a greater impact compared to active treatment (effect size 0.43).
White, 2010	E-intervention; workplaces, colleges	17	A meta-analysis of 8 trials found that online input could be effective but there was a wide range of effect sizes (0.02–0.88) owing to heterogeneity.

control groups in brief intervention trials ([Bernstein, Bernstein & Heeren 2010](#); [Jenkins, McAlaney & McCambridge, 2009](#)) and reported consistently reduced drinking. Thus it has been suggested that screening or assessment reactivity may be important elements of positive brief intervention effects ([McCambridge & Day, 2007](#); [Kypri et al., 2007](#)).

Despite considerable efforts over the years to persuade practitioners to deliver brief interventions in practice, most have yet to do so. A systematic review of 12 studies found that a combination of educational and office support could increase short-term delivery of brief interventions in primary care from 32% to 45% ([Anderson et al., 2004](#)). Nevertheless, there continue to be challenges in implementing brief interventions in the health sector. A recent survey in England ([Wilson et al., 2011](#)) reported that while practitioners' attitudes have improved over the last decade ([Kaner et al., 1999](#)), this has not been matched by actual practice. Despite some progress in disseminating the supporting evidence base ([Kaner, 2010](#)) and in developing national guidance on brief interventions ([NICE, 2010](#)), a lack of time and reimbursement remain enduring obstacles for this work. Thus there is a need to encourage national and local policy-makers to find ways of incentivising and embedding this work in busy practice settings ([McCormick, 2010](#)).

One review bridged the divide between prevention and treatment by considering brief interventions in hospitalized patients ([McQueen et al., 2011](#)). While 14 randomized controlled trials were identified, primarily from the United Kingdom and United States, a varying number contributed to the meta-analyses of the various outcome measures (range 1–7 trials). The primary meta-analysis included four trials and found that patients receiving brief interventions showed greater reductions in alcohol consumption compared to controls at six months (mean difference: 69 g; 95% CI: -128 – -10) but not at one year. There were also significantly fewer deaths following brief interventions at six months (relative risk: 0.42; 95% CI: 0.19–0.94) and one year (relative risk: 0.60; 95% CI: 0.40–0.91). Thus, although a previous review had reported null effects from brief interventions in hospitalized patients, this updated review revised its conclusion to beneficial but time-limited effects. Nevertheless, it is not clear how many participants in the trial were alcohol treatment-seekers (aware of their alcohol problems before hospitalization) or non-treatment-seekers who became aware of their alcohol problem following hospitalization.

Four recent high-quality systematic reviews and meta-analyses have looked at specialist alcohol treatment, of which two focused on psychosocial counselling ([Magill & Ray, 2009](#); [Smedslund et al., 2011](#)) and two focused on pharmacological treatment ([Rösner et al., 2010a](#); [Rösner et al., 2010b](#)).

To date, 53 controlled trials have considered the impact of cognitive behavioural therapy (CBT) on substance use and 23 specifically on alcohol use ([Magill & Ray, 2009](#)). A small but clinically

significant effect of CBT was reported, although its impact reduced over time from six months after the initial input (Magill & Ray, 2009). A large effect size was found for CBT compared to no treatment ($g=0.79$, $p <.005$; $n=6$), although a smaller effect was found for other comparison conditions (such as usual care or another active treatment). CBT combined with other psychosocial treatment showed a larger effect size ($g=0.30$, $p <.005$; $n=19$) than CBT combined with pharmacological treatment ($g=0.20$, $p <.005$; $n=13$) or CBT alone ($g=0.17$, $p <.05$; $n=21$). Regarding motivational interviewing approaches, 59 trials have focused on its impact on substance use and 29 trials on alcohol abuse or dependence (Smedslund et al., 2011). Compared to controls who received no treatment, motivational interviewing showed a significant impact in reducing substance use which was greatest soon after intervention (standardized mean difference: 0.79; 95% CI: 0.48–1.09) and reduced over time. For longer-term follow-up (12 months or longer), the effect was not significant (standardized mean difference: 0.06; 95% CI: -0.16–0.28). Motivational interviewing rarely produced significant benefits when compared to other active treatments.

Two key pharmacological therapies used to promote abstinence or reduced consumption in problem drinkers are acamprosate (a glutamate antagonist) and naltrexone (an opioid antagonist). In 2010, 2 systematic reviews identified 24 acamprosate trials (Rösner et al., 2010a) and 50 naltrexone trials (Rösner et al., 2010b). Compared to placebos, acamprosate significantly reduced the risk of drinking (relative risk: 0.86; 95% CI: 0.81–0.91) and the cumulative duration of abstinence reported by trial participants (mean difference: 10.94; 95% CI: 5.08–16.81) with minimal side-effects (Rösner et al., 2010a). Naltrexone reduced the risk of heavy drinking compared to a placebo group (relative risk: 0.83; 95% CI: 0.76–0.90) and significantly decreased the number of drinking days by about 4% (mean difference: -3.89; 95% CI: -5.75–2.04). Positive effects were also demonstrated for some secondary outcomes including heavy drinking days, total alcohol consumption and gamma-glutamyltransferase (Rösner et al., 2010b). However, naltrexone gave side effects of mainly gastrointestinal problems and sedative effects (Rösner et al., 2010b).

In summary, there is a large literature on treatment which has emerged over recent years. These high-quality reviews have concluded that psychosocial counselling interventions generally produce beneficial but time-limited effects for patients and that pharmacological agents can be used to help achieve alcohol abstinence and other treatment outcomes in a safe and effective way. The precise combination of counselling and pharmacotherapy to use is less clear and must depend on the severity of the problem, the goals of treatment and the patient's preferences regarding possible side-effects.

Conclusions for policy and practice

There is a large and robust evidence base to support the effectiveness and cost-effectiveness of health sector responses in preventing and treating alcohol-related problems in EU member countries. The largest evidence base relates to preventive interventions, particularly the use of brief alcohol interventions with hazardous and harmful drinkers who are not seeking treatment, generally because they are unaware of their alcohol-related risk or harm. There have, however, been challenges in achieving wide-scale and or sustained implementation of brief interventions by practitioners. A range of EU projects have developed standardized tools to support the delivery of brief interventions and have identified strategies to help promote the uptake of these interventions in routine health care. Further support for the implementation of brief alcohol interventions in the health sector is likely to require clear prioritization of this issue in national public health strategies and incentives for this preventive work to be undertaken work by general practitioners, who often place more focus on treatment and care. Specialist practitioners have a

range of therapies that can be used to help problem drinkers who are seeking treatment. A minority of problem drinkers tend, however, to present to services for this input. Improved screening and case detection approaches in primary care may help to address this problem. Finally, better integration of prevention and treatment services would also help to ensure that problem drinkers are fully supported by the health sector.

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