

# A Multicountry Controlled Trial of Strategies to Promote Dissemination and Implementation of Brief Alcohol Intervention in Primary Health Care: Findings of a World Health Organization Collaborative Study\*

MICHELLE FUNK, M. PSYCHOL., PH.D.,<sup>†</sup> SONIA WUTZKE, M.P.H., PH.D.,<sup>†</sup> EILEEN KANER, PH.D.,<sup>†</sup>  
PETER ANDERSON, M.D., M.P.H., PH.D.,<sup>†</sup> LEO PAS, M.D.,<sup>†</sup> ROSS McCORMICK, M.D., PH.D.,<sup>†</sup>  
ANTONI GUAL, M.D., PH.D.,<sup>†</sup> SVERRE BARFOD, M.D.,<sup>†</sup> AND JOHN SAUNDERS, M.D.<sup>†</sup>  
ON BEHALF OF THE WORLD HEALTH ORGANIZATION (WHO) BRIEF INTERVENTION STUDY GROUP

*Department of Mental Health and Substance Abuse, WHO, 20 Avenue Appia, CH-1211 Geneva 27, Switzerland*

**ABSTRACT. Objective:** This study examines the impact of marketing strategies on the dissemination of a brief alcohol intervention program to general practitioners (GPs). The marketing strategy was tested to determine the most effective way to promote awareness about and consideration of a brief alcohol intervention program. The study also examines the impact of training and support strategies to promote the program's implementation in routine primary care. **Method:** A pragmatic trial was carried out in Australia, Belgium (Flanders), Denmark, England, New Zealand and Spain (Catalonia) in which GPs were randomly allocated into one of three marketing conditions (direct mail, telemarketing and academic detailing [personal visits]). The GPs who requested a brief intervention program and agreed to use it were stratified by previous marketing condition and randomly allocated into one of three implementation strategy groups: written guidance, outreach training and out-

reach training plus ongoing telephone support. **Results:** Acceptance of the brief intervention program was more effective with use of telemarketing (65%) and academic detailing (67%) than with direct mail (32%) for promoting awareness about and consideration of a brief alcohol intervention program. The median proportion of patients screened was higher for trained GPs (6%) and supported GPs (9%) than for control GPs (1%), who received only written guidance on how to conduct brief intervention. Similarly, the median rate for giving advice to at-risk patients was higher for trained GPs (3%) and supported GPs (3%) than for control GPs (0%). **Conclusions:** The adoption of more direct approaches for disseminating evidence-based intervention programs to GPs is a necessary first step for changing practice behavior. However, outreach training was required to promote actual use of a new procedure in routine practice. (*J. Stud. Alcohol* 66: 379-388, 2005)

**A**LCOHOL AS A RISK FACTOR accounts for 4% of the burden of disease worldwide, as measured by disability-adjusted life years. The burden of disease is greater for men than for women and is more evident in developed countries, in which alcohol is responsible for 9.2% of the burden of disease. In developing countries with low child and adult mortality, alcohol accounts for 6.2% of the burden of disease and is the leading risk factor for mortality. In developing countries with high child and adult mortal-

ity, alcohol is less important as a risk factor for disease (World Health Organization [WHO], 2002). These disability-adjusted life years do not include the additional burden caused by social harm in the community, nor the burden affecting others, such as family members and work colleagues (Caetano and Cunradi, 2002).

It is now well established that much of the harm from alcohol can be attributed to risky alcohol use by non-dependent drinkers rather than by the smaller proportion of

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<sup>†</sup>Correspondence may be sent to Michelle Funk at the above address, or via email at: [funkm@who.int](mailto:funkm@who.int). Sonia Wutzke is with the National Prescrib-

ing Service Ltd, Surry Hills, New South Wales, Australia. Eileen Kaner is with the School of Population and Health Sciences, Centre for Health Services Research, University of Newcastle upon Tyne, Newcastle upon Tyne, England. Peter Anderson is with the Centre for Quality of Care Research, University Medical Centre Nijmegen, Nijmegen, The Netherlands. Leo Pas is with the Research Department of the Scientific Society of Flemish General Practitioners, Berchem, Belgium. Ross McCormick is with the Department of General Practice and Primary Health Care, University of Auckland, Auckland, New Zealand. Antoni Gual is with the Cap de la Unitat d'Alcoholologia de la Generalitat, Institut de Neurociències, Hospital Clínic, Barcelona, Spain. Sverre Barfod is with the Research Unit of General Practice in Copenhagen, Center for Sundhed og Samfund, Copenhagen, Denmark. John Saunders is with the Discipline of Psychiatry, School of Medicine, University of Queensland, Brisbane, Australia.

alcohol-dependent people (Kreitman, 1986). Within the nondependent subgroup of drinkers, brief intervention involving screening to identify people drinking alcohol at hazardous and harmful levels and brief advice on how to reduce consumption have been shown to be effective interventions to reduce alcohol consumption and alcohol-related problems. The numbers needed to treat hazardous and harmful alcohol consumption as well as alcohol-related problems, as estimated in the different meta-analyses, range from 8 to 12 (Beich et al., 2003; Moyer et al., 2002). This means that between 8 and 12 people need to be treated for hazardous and harmful alcohol consumption for 1 person to benefit. Brief intervention programs appear to be equally effective for both men and women (Ballesteros et al., 2004). Brief interventions have also been shown to prevent one in three deaths that occur in drinkers who participate in hazardous and harmful alcohol consumption (Cuijpers et al., 2004). On average, 282 patients need to receive advice to prevent one death within 1 year (Moyer et al., 2002). As few as 5-10 minutes of structured advice about alcohol, delivered by primary care professionals, can bring about significant reductions in consumption behavior (WHO, 1996). The effects of brief intervention programs have been demonstrated at 5 years (Fleming et al., 2002) but not at 10 years (Wutzke et al., 2002).

Brief interventions are highly cost-effective per life year saved (Chisholm et al., 2004; Wutzke et al., 2001). Fleming et al. (2002) reported that a benefit-cost analysis undertaken in the United States resulted in a U.S. \$43,000 reduction in future health costs for every U.S. \$10,000 invested in early intervention. If implemented on a wide scale, brief interventions for nondependent drinkers have the potential to have a significant public health benefit (Chisholm et al., 2004). A key setting in which to provide intervention is general practice, given physicians' contact here with significant proportions of the population in most countries (Anderson, 1996) and also the credibility of family physicians in providing advice on a range of health issues (Nutting, 1986; Slama et al., 1989).

Despite the evidence for the efficacy and the cost-effectiveness of brief interventions in primary health care, such interventions are rarely integrated into routine clinical practice (Heather, 1996; Rush et al., 1994), and clinical guidelines are adhered to poorly (Brotons et al., 1996; Spandorfer et al., 1999). Although a high proportion of general practitioners (GPs) state that they screen and intervene for alcohol problems (Haley et al., 2000; Kaner et al., 1999; Lopez-de-Munain et al., 2001; McAvoy et al., 1999, 2001), actual screening and intervention rates are low (Gomel et al., 1998; Rumpf et al., 2001), and patients themselves report that GPs rarely ask them about alcohol use, even in the case of excessive drinkers (Aalto et al., 2001).

Although GPs report that they find managing alcohol problems difficult (Anderson et al., 2003), a meta-analysis

of interventions to engage primary health care providers in delivering screening and brief intervention (SBI) programs found an absolute increase in providers' rates for screening and giving advice of between 8% and 18% over a comparison group (Anderson et al., 2004b).

The present study provides additional evidence of the impact of strategies to promote dissemination and implementation of brief alcohol interventions in primary health care. This two-stage, multicountry, randomized, controlled trial investigated (1) the impact of marketing strategies to disseminate a brief alcohol intervention program to GPs and (2) the impact of skill-based training and support strategies to promote implementation of this intervention in routine practice. The study was Phase III of a WHO collaborative program of work on brief interventions for hazardous and harmful alcohol consumption (Monteiro and Gomel, 1998).

## Method

In the first stage of the trial, three dissemination or marketing strategies were evaluated: direct mail, telemarketing and academic detailing. The main outcome was acceptance of the brief intervention program by GPs. In the second stage of the trial, all GPs who received the brief intervention program were asked if they would use it in practice for 3 months. Implementation was promoted through an additional combination of three training and support strategies: written guidance on using the brief intervention program (controls), practice-based training (outreach training) and ongoing telephone-based support (ongoing support). The outcomes were the use of the program and SBI rates.

### *Study settings and adjustments to the protocol*

The study was carried out in six countries: Australia, Belgium (Flanders), Denmark, New Zealand, Spain (Catalonia) and England. It was not possible for all six countries to carry out the full study protocol because of the inappropriateness of some study components to the local context, funding restrictions or ethics committee requirements. Thus, the dissemination stage only was completed in Denmark and the academic detailing group in the dissemination stage of the trial was not included in Catalonia. In the implementation stage of the study, the control condition was not included in New Zealand and the outreach-training group was omitted in Catalonia. Finally, because they do not employ practice receptionists, GPs in Belgium carried out all patient screening activity on their own.

### *Sampling and randomization*

Investigators in each country obtained a representative sample of GPs currently engaged in primary care. Typically,

the sample was randomly selected from databases of practitioners maintained by national or regional health authorities, or by academies or associations of GPs in each of the countries. One GP per practice was included in the study and all randomization occurred at the practice level.

The GPs were randomly allocated into groups determined by one of three marketing strategies: direct mail, telemarketing and academic detailing (except, as noted, in Catalonia). The GPs who requested the brief intervention program and agreed to participate in the implementation stage of the trial were stratified by previous marketing condition and randomly allocated into the following training and support strategy groups: controls (except, as noted, in New Zealand), outreach training (except, as noted, in Catalonia) and ongoing support. Randomization occurred either by the use of random number tables and/or computer-based random sample generation (e.g., with SPSS).

#### *Inclusion and exclusion criteria*

GPs were included in the trial if they were registered practitioners who delivered general medical services. Practitioners were excluded if they only provided locum or emergency medical services, they had moved away from the study area, they were on extended leave from their practice, they had been involved in pilot work relating to the study or if a practice partner had already been approached by research staff.

#### *Sample size calculation*

Sample sizes were estimated using the results of pilot work carried out in Australia. This work indicated acceptance rates of 40%, 60% and 65% for direct mail, telemarketing and academic detailing, respectively. To detect a difference of 20% in acceptance between marketing strategies, with 80% power and  $\alpha = 0.05$ , a minimum of 107 GPs for each strategy was required. For implementation, a difference in mean (SD) screening rate of 0.15 (0.3) between strategies was regarded as important. With 80% power and  $\alpha = 0.05$ , it was estimated that 64 GPs would be required for each training and support strategy. However, assuming that only 50% of those GPs who agreed to accept the SBI program in the dissemination and marketing stage would agree to participate in the implementation phase of the trial, it would be necessary to initially approach at least 128 GPs.

Given these assumptions and calculations and taking into account the different acceptance rates expected for the three marketing conditions, it was necessary to include 320 GPs in the direct mail condition (acceptance rate of 40%), 213 in the telemarketing condition (acceptance rate of 60%) and 196 GPs in the academic detailing method (acceptance rate of 65%).

It was not possible to generate a sufficient sample size for the project in either Denmark or New Zealand. The

GPs in Denmark did not complete the training and support phase of the research project, and those in New Zealand implemented this phase using two, rather than three, conditions to obtain an adequate sample size for the training and support phase.

#### *Pilot work*

Pilot studies were carried out by all participating centers to test the feasibility of the study protocol, pretest questionnaires and intervention material, train staff in study intervention and verify the accuracy of sample size calculations.

#### *Screening and brief intervention program*

The SBI used in this study, "Drink-less" (Gomel et al., 1994), was based on a protocol of proven efficacy devised during a WHO brief intervention trial (Babor and Grant, 1992) and customized for use in routine practice (Gomel et al., 1994). Each participating country translated and modified Drink-less to meet local conditions. The package was designed to enable primary health care workers to screen patients for alcohol-related problems and to give 5 minutes of structured advice to at-risk drinkers on how to reduce consumption. Risk drinking consists of hazardous consumption, which incurs increased risk of psychological or physical harm (Edwards et al., 1981), and harmful consumption, which is defined as the presence of physical or psychological symptoms (WHO, 1992).

The screening tool used in this study was the Alcohol Use Disorders Identification Test (AUDIT; Babor and Grant, 1989; Saunders et al., 1993) or a modification of the AUDIT (e.g., AusAUDIT; Degenhardt et al., 2001). Eligible patients were aged 16 years and over who were not repeat attendees during the study period, were well enough to complete the questionnaire and understood the native language of the country. The core study design required receptionists to distribute the screening questionnaires while patients were waiting to see the GP and then to place a sticker on the patient's file to prevent repeat screening. Participating receptionists were asked to complete a tally sheet to record the reason for nonscreening. During the regular consultation, the GP scored the screening questionnaire with a template and provided brief advice to patients who were at risk, using a prompt-card designed specifically for this purpose. Patients were given a pocket-sized booklet that reinforced the advice given by the GP, namely, the impact on health of excessive drinking, and a six-step plan for modifying drinking habits.

#### *Dissemination interventions: Marketing strategy*

*Direct mail.* The GPs were mailed a promotional leaflet that described the program in written and pictorial form. A

personalized introductory letter, which outlined the scientific basis of the program, accompanied the leaflet. The GPs could request the program either by telephone or by returning a postage-paid reply card.

*Telemarketing.* The GPs were contacted by telephone and a structured "sales script" was used to ask if they were interested in receiving the program. The script covered the major aims of the program and described the materials. The GPs could request the program verbally during the telephone conversation. In three countries, a limit was placed on the number of attempts to speak with the GP (up to 3 attempts in Belgium, 5 in Australia and 10 in England).

*Academic detailing.* The GPs were visited at the practice and a rehearsed "sales script" similar to that used in the telemarketing strategy was used to promote the program and demonstrate use of the materials. Practitioners could verbally agree to accept the program during the visit. Before the visit, the detailer telephoned the practice either to check that the GP would be practicing on the day that the detailer was in the area (Australia, Denmark and New Zealand) or to make an appointment for a meeting with the GP (Belgium and England). The specific reason for this preliminary call was not explained in order to prevent a telemarketing effect on the academic detailing strategy.

Although the directness of marketing varied between strategies, the content was standardized and included program endorsement from key organizations within each country, incentives for involvement in brief intervention (e.g., continuing medical education accreditation in Australia and England), and benefits of the program for both patients and practitioners. In the telemarketing and academic detailing conditions, staff in all countries were trained to deliver these strategies and to anticipate and address any problems, perceived barriers or reservations expressed by GPs by using a standardized protocol and sales scripts.

#### *Implementation interventions: Training and support strategies*

*Control.* The control group was composed of GPs who received written instruction regarding the program only. The brief intervention program, which contained written guidance regarding implementation and the collection of research data, was either dropped off or mailed to each practice; there was no demonstration of the program. Practitioners received no initial training in the program and no ongoing support.

*Outreach training.* In the outreach training marketing strategy group, GPs and their receptionists received one face-to-face training session relating to the brief intervention program. Use of the program materials was demonstrated and procedures for collecting research data were detailed. No further advice or support was provided to the practice during the 12-week implementation period.

*Ongoing support.* Outreach training, as previously described, was provided to GPs and receptionists. However, in the ongoing support group, both physicians and their receptionists also were provided with support and advice regarding program implementation issues through biweekly telephone calls (England) and/or practice visits (Australia) throughout the 12-week study period.

Outreach training and ongoing support addressed a range of problems likely to be encountered during program implementation. This included attitudes and beliefs of the physician and receptionists (e.g., motivation and self-efficacy), patient intervention issues (e.g., difficulties with raising the topic of alcohol and negative patient reactions), structural and logistical issues (e.g., time constraints and other commitments) and practical suggestions for screening and counseling. Staff delivering training and support strategies, in all countries, were trained using a detailed standardized protocol and written scripts and guidance.

#### *Data collection and follow-up*

Twelve weeks following delivery of the intervention program, all practices were visited, GPs and receptionists were debriefed through semistructured interviews and unused program materials were counted to confirm use of materials. Where appropriate, receptionists' tallies were also collected at follow-up. Last, carbon copies of completed screening questionnaires were collected either routinely throughout the implementation period or at the follow-up visit. These carbon copies contained the recorded basic demographic details of the patients, including age, gender, self-reported occupation and level of education. These questionnaires included a section for the physician to record the AUDIT score and whether a patient had been advised and/or given a self-help booklet.

#### *Outcome measures*

*Acceptance rate.* The acceptance rate was the number of GPs in each marketing group who requested the SBI program as a percentage of the eligible GPs.

*Implementation rate.* The implementation rate was the number of GPs in each training and support group who used the SBI program (the minimum criterion was screening of at least one patient) as a percentage of eligible GPs.

*Screening rate.* The screening rate was the number of patients who were screened during the 12-week study as a percentage of eligible patients. Information about the eligible population was obtained either from automated record systems, tally sheets or other data sources, such as insurance data.

*Brief intervention rate.* The brief intervention rate was the number of patients who received brief intervention (advice and/or written information) during the study period as a percentage of drinkers at risk.

TABLE 1. Number of GPs at each stage of the trial

Country	Sample for stage 1	Acceptance in stage 1 (%)	Recruited to stage 2 (%)	Implementation (%)
Australia	654	385 (59)	175 (45)	112 (64)
New Zealand	369	237 (64)	95 (40)	68 (72)
England	729	329 (45)	128 (39)	73 (57)
Belgium	979	458 (47)	231 (50)	185 (80)
Catalonia	562	194 (35)	98 (51)	47 (48)
Denmark	143	81 (57)	—	—
Total	3,436	1,685 (49)	727 (43)	485 (68)

Note: GP = general practitioner.

Statistical analysis

As a result of adjustments to the study protocol in different countries, analysis focused on outcomes as a result of intervention effects rather than between-country differences, although these were described where appropriate. To assess the real world impact of interventions, outcome data were analyzed by intention to treat. Thus, all GPs who were randomized into a marketing strategy group were used as the denominator for acceptance rates. Thereafter, all GPs who were randomized into a training and support strategy group were included in the analysis even if they did not implement the program.

Data were analyzed using the statistical package SPSS Base 10.0 for Windows 10 (SPSS Inc., Chicago, IL). Screening and intervention rates were not normally distributed, and therefore nonparametric statistics were reported. Chi-square tests compared differences in acceptance and implementation rates across intervention groups. Kruskal-Wallis tests for median screening and intervention rates assessed implementation outcomes for each condition. Median summary values are reported with interquartile ranges (IQRs).

Results

Study cohort

The overall study cohort comprised 3,436 GPs from the six participating countries. Most of the GPs (76%, *n* = 2,611) were men, and their median age was 45 years (IQR: 39-50 years). There were no significant differences in the gender

or age of GPs across marketing strategy groups. However, there was a significant difference between countries in the proportions of male and female GPs ( $\chi^2 = 12.7$ , 5 df, *p* = .026) and the age of GPs (Kruskal-Wallis  $\chi^2 = 126.9$ , 5 df, *p* < .001). The English sample contained the highest proportion of male GPs (80%) and the Danish sample contained the oldest GPs (median age = 51 years; IQR: 46-54 years). Table 1 shows the flow of GP subjects from each country through both stages of the trial. The GPs were randomized into the marketing strategy groups as follows: 1,730 (50%) direct mail, 1,022 (30%) telemarketing and 684 (20%) academic detailing.

Dissemination

Overall, 49% of GPs (*n* = 1,685) accepted the brief intervention program. There was a significant difference in program acceptance by GPs between the three marketing strategies ( $\chi^2 = 847$ , 2 df, *p* < .001). Acceptance by GPs was lowest for those in the direct mail group at 32% (*n* = 554; 95% confidence interval [CI]: 28%-36%) compared with 65% (*n* = 669; 95% CI: 62%-69%) for telemarketing and 67% (*n* = 462; 95% CI: 63%-72%) for academic detailing. A similar pattern of results was found within countries, with the greatest difference being between direct mail and telemarketing, with little or no improvement made by academic detailing. However, consistently higher acceptance rates across all three strategies were reported in New Zealand; Catalonia reported markedly lower acceptance rates for telemarketing compared with the other five countries (Table 2).

In 1,500 cases where the gender of the GP was known (1,141 men and 359 women), there was a significantly higher acceptance rate for female GPs (*n* = 238; acceptance rate = 66%) compared with male GPs (*n* = 683; acceptance rate = 59%;  $\chi^2 = 4.8$ , 1 df, *p* = .03). In the 648 cases where the age of the general practitioner was known, program acceptance was significantly higher for younger than older GPs (Mann-Whitney *z* = -7.5, *p* < .001). The median age of GPs who accepted the program was 44 years (IQR: 39-49) compared with 52 years for GPs who did not accept the program (IQR: 48-56).

TABLE 2. Program acceptance, by marketing condition and country

Country	Direct mail		Telemarketing		Academic detailing	
	Total	Accept. (%)	Total	Accept. (%)	Total	Accept. (%)
Australia	290	128 (44)	217	159 (73)	147	99 (67)
New Zealand	186	95 (51)	87	64 (74)	96	78 (81)
England	320	65 (20)	213	153 (72)	196	111 (57)
Belgium	550	152 (28)	230	163 (71)	199	143 (72)
Catalonia	337	100 (30)	225	94 (42)	—	—
Denmark	47	14 (30)	50	36 (72)	46	31 (67)
Total	1,730	554 (32)	1,022	669 (65)	684	462 (67)

Note: Accept. = acceptance.

### Recruitment to stage 2 of the trial

A total of 727 GPs from five countries (Denmark did not participate) were recruited into stage 2 of the trial and were randomized into training and support conditions as follows: 209 (29%) controls, 255 (35%) outreach training and 263 (36%) ongoing support. There was an even distribution of GPs from previous marketing strategy groups in these intervention groups ( $\chi^2 = 8.41$ , 4 df, NS). However, recruitment rates significantly differed between marketing strategy groups ( $\chi^2 = 20.05$ , 2 df,  $p < .001$ ). The proportion of GPs recruited was lowest from the direct mail (control) group at 38% of GPs ( $n = 247$  out of 653; 95% CI: 38%-44%), followed by GPs in the telemarketing group at 46% ( $n = 268$  out of 587; 95% CI: 40%-52%) and highest in GPs in the academic detailing group at 52% ( $n = 212$  out of 412; 95% CI: 45%-58%).

### Implementation

The proportion of GPs from each training and support strategy group who implemented the brief intervention program was lowest for controls at 58% ( $n = 121$  out of 209; 95% CI: 49%-67%) compared with 69% for outreach training ( $n = 176$  out of 255; 95% CI: 62%-76%) and 71% for ongoing support ( $n = 186$  out of 263; 95% CI: 64%-77%). The effect of training and support strategy on implementation by GPs was statistically significant ( $\chi^2 = 9.76$ , 2 df,  $p = .008$ ).

Differing patterns of implementation were found within countries (Table 3). In Australia and England, there were increasing rates of implementation from controls through outreach training to ongoing support, and both countries reported a significant chi-square test for trend ( $\chi^2 = 10.1$ , 1 df,  $p = .006$  for Australia;  $\chi^2 = 6.4$ , 1 df,  $p = .039$  for England). No such trend was found in the three remaining countries. Belgium reported the highest implementation rates overall, and there were consistently high rates across the three training and support conditions. In New Zealand, implementation rates were higher for outreach training compared with ongoing support. Finally, the lowest implementation rates overall occurred in Catalonia.

In 613 cases where the gender of the GPs was known (445 men and 168 women), female GPs ( $n = 144$ ; implementation rate 86%) were significantly more likely to implement the brief intervention program than male GPs ( $n = 327$ ; implementation rate 74%) ( $\chi^2 = 10.2$ , 1 df,  $p = .001$ ). There was no significant difference in program implementation on the basis of age.

There was a significant difference in median screening rates between the different training and support groups (Kruskal-Wallis  $\chi^2 = 23.24$ , 2 df,  $p < .0001$ ). Control group GPs had lower screening rates (median = 1%; IQR: 0%-11%) compared with trained GPs (median = 6%; IQR: 0%-

34%) or GPs in the ongoing support group (median = 9%; IQR: 0%-29%). Median screening rates were highest in New Zealand and Australia and lowest in Belgium. Screening rates also differed significantly on the basis of gender (Kruskal-Wallis  $\chi^2 = 15.4$ , 1 df,  $p < .001$ ). Female GPs had a higher median screening rate of 16% (IQR: 2%-39%) compared with that of male GPs, whose median screening rate was 6% (IQR: 0%-25%). There were no significant differences in screening rate on the basis of age (nonsignificant Mann-Whitney U test, based on younger vs older GPs, a binary variable based on a cut-off point at the median age of 45 years).

There was also a significant difference in median brief intervention rates between training and support groups (Kruskal-Wallis  $\chi^2 = 22.09$ , 2 df,  $p < .0001$ ). Controls had lower brief intervention rates (median = 0%; IQR: 0%-5%) compared with trained GPs (median = 3%; IQR: 0%-19%) and GPs with ongoing support (median = 3%; IQR: 0%-21%). Median intervention rates were highest in New Zealand and Australia and lowest in England and Catalonia. Brief intervention rates differed significantly on the basis of gender (Kruskal-Wallis  $\chi^2 = 4.21$ , 1 df,  $p = .04$ ). Female GPs had a median brief intervention rate of 6% (IQR: 0%-24%) compared with male GPs, who had a median brief intervention rate of 2% (IQR: 0%-17%). There was not a

TABLE 3. Implementation outcomes, by training/support condition and country

Country	Control	Outreach training	Ongoing support
<b>Australia</b>			
Sample, no.	34	94	47
Implemented, no. (%)	15 (44)	60 (64)	37 (79)
Median screening rate, (IQR)	0 (0-34)	11 (0-48)	22 (4-50)
Median brief intervention rate, (IQR)	0 (0-17)	5 (0-27)	12 (0-34)
<b>New Zealand</b>			
Sample, no.	—	47	48
Implemented, no. (%)	—	35 (75)	33 (69)
Median screening rate, (IQR)	—	19 (0-46)	19 (0-58)
Median brief intervention rate, (IQR)	—	7 (0-29)	10 (0-27)
<b>England</b>			
Sample, no.	43	43	42
Implemented, no. (%)	19 (44)	24 (56)	30 (71)
Median screening rate, (IQR)	0 (0-10)	2 (0-12)	11 (0-27)
Median brief intervention rate, (IQR)	0 (0-3)	0 (0-9)	4 (0-18)
<b>Belgium</b>			
Sample, no.	84	71	76
Implemented, no. (%)	67 (80)	57 (80)	59 (78)
Median screening rate, (IQR)	2 (0-9)	2 (0-15)	1 (0-13)
Median brief intervention rate, (IQR)	1 (0-5)	2 (0-8)	1 (0-12)
<b>Catalonia</b>			
Sample, no.	48	—	50
Implemented, no. (%)	20 (42)	—	27 (54)
Median screening rate, (IQR)	0 (0-8)	—	6 (0-24)
Median brief intervention rate, (IQR)	0 (0-4)	—	0 (0-14)
<b>Total</b>			
Sample, no.	209	255	263
Implemented, no. (%)	121 (58)	176 (69)	186 (71)
Median screening rate, (IQR)	1 (0-11)	6 (0-34)	9 (0-29)
Median brief intervention rate, (IQR)	0 (0-5)	3 (0-19)	3 (0-21)

Note: IQR = interquartile range.

significant difference in brief intervention rate on the basis of age (nonsignificant Mann-Whitney U test on binary age variable, as previously described).

#### Patient characteristics

Overall, 60,989 patients were screened by the 483 GPs who actually implemented the brief intervention program. Table 4 shows the broad characteristics of these patients in each country, including the proportion of patients classified as hazardous or harmful drinkers. The final two rows of data in this table show the proportions of hazardous and harmful drinkers who received brief advice from a GP. In each country for which data were available, harmful drinkers were more likely to receive advice from their GP than were hazardous drinkers (Australia,  $\chi^2 = 154.51, p < .0001$ ; New Zealand,  $\chi^2 = 355.71, p < .0001$ ; England  $\chi^2 = 37.85, p < .0001$ ; and Catalonia,  $\chi^2 = 13.29, p < .0001$ ).

### Discussion

There have been few systematic investigations of strategies to enhance the use of preventive lifestyle interventions in routine primary health care, particularly across different cultural settings. The main findings of this study were that direct marketing strategies such as telemarketing and academic detailing were more effective at promoting awareness about and consideration of a brief alcohol intervention program than was an indirect mail-based strategy. Subsequently, the type of training and support strategy received by GPs influenced the actual level of SBI carried out by GPs in all countries where it was examined. The provision of skill-based training in brief intervention procedures, provided to GPs in the outreach training and ongoing support groups, resulted in more patients being screened and advised about risky drinking than the provision of written

guidance on how to conduct brief alcohol intervention. This finding fits with other reports that state that even though written information may raise awareness, it is rarely sufficient to change clinician behavior (NHS Centre for Reviews and Dissemination, 1994; Oxman et al., 1995). An active implementation strategy is usually required to provide subjects with the necessary skills and encouragement to adjust existing behavior (Dunn et al., 1994) while concurrently addressing perceived barriers to change (Robertson et al., 1996).

The fact that personal visits had more impact on GPs' awareness and consideration of brief interventions than a mail-based approach is perhaps unsurprising. These results are consistent with those found in the area of physician prescribing in which personal visits (academic detailing) have been found to be more effective in modifying behavior than the mailing of educational materials or no intervention (Avorn and Soumerai, 1983; Kottke et al., 1989). The finding that telemarketing appeared to be as effective as academic detailing for promoting acceptance and awareness of the program was new and indicates that this may be a more practical and cost-effective dissemination strategy because visits to physicians are generally time-consuming and expensive, especially in remote areas. Nevertheless, both academic detailing and telemarketing provided a way of addressing physicians' needs through staff members acting as linking agents in transferring knowledge to the physician (Hornik, 1988; Orlandi et al., 1990; Reingen and Kernan, 1977; Rush et al., 1995).

It should be noted that the mail response rate of 32% compares favorably with reported response rates in other dissemination trials (Avorn, and Soumerai, 1983; Cockburn et al., 1992; Kottke et al., 1989; Schaffner et al., 1983). At least two factors may have contributed to the high acceptance rates observed in this study. Each marketing strategy emphasized the benefits and scientific basis of the program as well as endorsements from medical authorities, and the

TABLE 4. Characteristics of patients screened by GPs, by country

Characteristics	Australia	New Zealand	England	Belgium	Catalonia
Patients screened ( <i>n</i> )	23,129	15,452	12,814	4,569	5,025
Mean (SD) age	46 (18)	42 (18)	46 (18)	47 (18)	51 (18)
Mean (SD) AUDIT score	5 (4)	4 (5)	5 (4)	4 (4)	3 (4)
Men, %	59	41	36	43	46
Women, %	41	59	64	57	54
Completed high school, %	61	59	66	57	75
Unemployed, %	4	6	7	4	2
Home duties, %	19	14	17	13	24
Retired, %	14	19	20	23	20
No/low-risk drinking, %	78	77	68	81	87
Hazardous drinking, %	18	18	28	16	10
Harmful drinking, %	4	5	4	3	3
Hazardous drinkers receiving SBI, %	54	44	36	—	49
Harmful drinkers receiving SBI, %	76	74	59	—	66

Notes: GP = general practitioner; AUDIT = Alcohol Use Disorders Identification Test; SBI = screening and brief intervention.

program was marketed as a free product from a credible, respected organization.

A further finding of this study was that even after a decision is made to use an intervention, the type of training and support offered can determine the extent to which the intervention will be used. Follow-up telephone support after initial outreach training did not appear to provide additional benefit to GPs, suggesting that ongoing telephone support may not be appropriate in this context. It is possible that ongoing telephone support may be perceived as an "interruption to their schedule" by busy GPs thus possibly having a mixture of positive and negative effects. Alternatively, it may be that a support strategy that addresses GP attitudes and beliefs to a greater degree may have had more pronounced effects on screening and intervention rates; this possibility should be explored through further research.

An attempt was made to collect cost data to inform a cost-effectiveness analysis of the different intervention strategies. Unfortunately, the complexities of this multisite project meant that these data were not sufficiently or consistently collected to report reliably across the countries involved. However, a detailed cost-effectiveness of the strategies has been undertaken for the Australian data (Gomel et al., 1998). In this comprehensive economic analysis, telemarketing was found to be more cost-effective than both direct mail and academic detailing in promoting acceptance of the intervention package: The cost for telemarketing was Aus. \$24.69 and Aus. \$118.52 less for each practitioner agreeing to take the package compared with direct mail and academic detailing, respectively. In contrast, costs and effects increased incrementally with the level of training and support provided during the implementation phase. Costs were lowest for the control strategy and highest for the maximal support strategy; each additional patient screened in the maximal support group cost Aus. \$0.86 and each additional hazardous drinker counseled cost Aus. \$4.70.

Although cultural differences undoubtedly influenced the quantitative relationships observed for the dissemination (marketing) and implementation (training and support) phases of this trial, the consistent pattern of results across countries demonstrates the robustness of these findings. In another article, it was estimated that 13.7% of the variance in screening rates, 22.2% of the variance in brief intervention rates and 12.3% of variance in the attitudes of the GPs toward working with patients with harmful alcohol consumption were explained by the country of the general practitioner (Anderson et al., 2004a).

Moreover, gender appeared to have an effect on acceptance and later program use, which was consistent across the different countries in this study. In particular, female GPs and younger GPs were more likely to accept the program, and the women were more likely to implement it than their male colleagues. These results may reflect the fact that preventive counseling has become important in

medical training relatively recently and raises the speculation that women might be more confident than men in addressing lifestyle issues.

Some aspects of this study are discouraging. First, only 14% of GPs from the random sample actually implemented the brief intervention program in routine practice. Moreover, the outcomes achieved for screening and intervention rates were very low and, taking into account further attrition over time (i.e., beyond the 3-month follow-up), one could question the clinical significance of the findings and whether these justify widespread use of the training strategies. The methods for collecting data, missing data and loss to follow-up of GPs may have increased variability in data and reduced outcome effects; however, this is likely to account for only a small part of the explanation. More likely, the reality is that the low screening and intervention rates reflected a long-known low motivation on the part of GPs to be involved in this type of work (Thom and Tellez, 1986). Moreover, structural factors (lack of time and financial reimbursement), patient reactions (denial and defensiveness) and practitioner attitudes (a sense of helplessness in treating patients, concerns regarding the right to intervene) may be strong barriers to adoption of alcohol interventions (Wutzke et al., 1998). Systematic effort to reduce these inhibiting variables while promoting facilitating factors (such as increased opportunity for receptionist contact with patients and the provision of resources and skills not normally available) would be warranted. On the other hand, it should be emphasized that the small number of GPs who implemented the brief intervention program actually screened large numbers of patients. Thus, although the clinical significance of the work could be questioned on the basis of GP coverage, even partial acceptance of brief intervention has the potential to make a large impact on the population.

The type of study being conducted made it impossible to ensure the quality of study measures over time, although the same instructions for data collection were provided to each of the conditions in all countries using a research protocol. A further difficulty related to the incomplete standardization of interventions in different participant countries, despite a common study protocol. Culturally specific differences in training and support interventions may have underpinned the different implementation rates between countries and, hence, may have affected the ability to generalize the findings.

The strengths of this pragmatic trial, however, are found in its applicability to routine practice in primary care across a range of countries. It is clear from this trial and other published studies that interventions can increase the awareness and use of evidence-based interventions in routine practice (Adams et al., 1998; Bonevski et al., 1999; Borgiel et al., 1999; Lockyer et al., 1996; Rodney et al., 1985; Wilson et al., 1992). Strategies that are multicomponent and involve both educational and practice-based training

interventions appear to be more effective in changing providers' behavior than those that use either single strategy alone (Anderson et al., 2004b). General practitioners seem to intervene with a larger number of patients when working in a supportive environment that increases the degree to which they feel able (role security) and willing (therapeutic commitment) to provide advice (Deehan et al., 1998; Shaw et al., 1978). A supportive work environment seems to be one in which GPs can have available screening and counseling materials, training in counseling and help in dealing with difficult situations (Anderson et al., 2003).

Additional analysis of a subset of the Phase III data found that, whereas outreach training and ongoing support increased general practitioners' SBI intervention rates, it did so only for practitioners who already felt secure and committed in working with problem drinkers (Anderson et al., 2004a). Training and support did not improve attitudes toward working with problem drinkers and, moreover, worsened the attitudes of those who were already insecure and uncommitted in this function. Thus, future research should focus on improving the training, and particularly the support, provided to GPs in this context. This work could be better informed by identifying and understanding characteristics of GPs, such as their attitudes, which may have influenced intervention rates, either as independent factors or through their interaction with the interventions provided.

In summary, this study has shown that direct marketing strategies have more impact on increasing the acceptance of new technology by GPs than do indirect approaches. Dissemination of material per se is unlikely to change practice behavior and often needs to be accompanied by a specific implementation strategy. However, within the context of change in professional behavior, doing more is not always better, particularly when costs and effectiveness are considered.

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### References

- AALTO, M., PEKURI, P. AND SEPPA, K. Primary health care nurses' and physicians' attitudes, knowledge and beliefs regarding brief intervention for heavy drinkers. *Addiction* **96**: 305-311, 2001.
- ADAMS, A., OCKENE, J., WHELLER, E.V. AND HURLEY, T.G. Alcohol counseling: Physicians will do it. *J. Gen. Intern. Med.* **13**: 692-698, 1998.
- ANDERSON, P. Alcohol and Primary Health Care, European Series No. 64, Copenhagen, Denmark: Regional Office for Europe, World Health Organization, 1996.
- ANDERSON, P., KANER, E., WUTZKE, S., FUNK, M., HEATHER, N., WENSING, M., GROL, R., GUAL, A. AND PAS, L. Attitudes and managing alcohol problems in general practice: An interaction analysis based on findings from a WHO collaborative study. *Alcohol Alcsm* **39**: 351-356, 2004a.
- ANDERSON, P., KANER, E., WUTZKE, S., WENSING, M., GROL, R., HEATHER, N. AND SAUNDERS, J. Attitudes and management of alcohol problems in general practice: Descriptive analysis based on findings of a World Health Organization international collaborative survey. *Alcohol Alcsm* **38**: 597-601, 2003.
- ANDERSON, P., LAURANT, M., KANER, E., WENSING, M. AND GROL, R. Engaging general practitioners in the management of hazardous and harmful alcohol consumption: Results of a meta-analysis. *J. Stud. Alcohol* **65**: 191-199, 2004b.
- AVORN, J. AND SOUMERAI, S.B. Improving drug-therapy decisions through educational outreach: A randomized controlled trial of academically based "detailing." *New Eng. J. Med.* **308**: 1457-1463, 1983.
- BABOR, T.F. AND GRANT, M. From clinical research to secondary prevention: International collaboration in the development of the Alcohol Use Disorders Identification Test (AUDIT). *Alcohol Hlth Res. World* **13**: 371-374, 1989.
- BABOR, T.F. AND GRANT, M. Project on Identification and Management of Alcohol Related Problems. Report on Phase II: A Randomized Clinical Trial of Brief Interventions in Primary Health Care, Geneva, Switzerland: World Health Organization, 1992.
- BALLESTEROS, J., GONZÁLEZ-PINTO, A., QUEREJETA, I. AND ARIÑO, J. Brief interventions for hazardous drinkers delivered in primary care are equally effective in men and women. *Addiction* **99**: 103-108, 2004.
- BEICH, A., THORKIL, T. AND ROLLNICK, S. Screening in brief intervention trials targeting excessive drinkers in general practice: Systematic review and meta-analysis. *Brit. Med. J.* **327**: 536-542, 2003.
- BONEVSKI, B., SANSON-FISHER, R.W., CAMPBELL, E., CARRUTHERS, A., REID, A.L. AND IRELAND, M. Randomized controlled trial of a computer strategy to increase general practitioner preventive care. *Prev. Med.* **29** (Pt 1): 478-486, 1999.
- BORGIEL, A.E., WILLIAMS, J.I., DAVIS, D.A., DUNN, E.V., HOBBS, N., HUTCHISON, B., WILSON, C.R., JENSEN, J., O'NEIL, J.J. AND BASS, M.J. Evaluating the effectiveness of 2 educational interventions in family practice. *Can. Med. Assoc. J.* **161**: 965-970, 1999.
- BROTOS, C., IGLESIAS, M., MARTIN-ZURRO, A., MARTIN-RABADAN, M. AND GENE, J. Evaluation of preventive and health promotion activities in 166 primary care practices in Spain. The Coordinating Group For Prevention and Health Promotion in Primary Care in Spain. *Fam. Pract.* **13**: 144-151, 1996.
- CAETANO, R. AND CUNRADI, C. Alcohol dependence: A public health perspective. *Addiction* **97**: 633-645, 2002.
- CHISHOLM, D., REHM, J., VAN OMMEREN, M. AND MONTEIRO, M. Reducing the global burden of hazardous alcohol use: A comparative cost-effectiveness analysis. *J. Stud. Alcohol* **65**: 782-793, 2004.
- COCKBURN, J., RUTH, D., SILAGY, C., DOBBIN, M., REID, Y., SCOLLO, M. AND NACCARELLA, L. Randomized trial of three approaches for marketing smoking cessation programmes to Australian general practitioners. *Brit. Med. J.* **304**: 691-694, 1992.
- CUJPERS, P., RIPER, H. AND LEMMERS, L. The effects on mortality of brief interventions for problem drinking: A meta-analysis. *Addiction* **99**: 839-845, 2004.
- DEEHAN, A., MARSHALL, E.J., AND STRANG, J. Tackling alcohol misuse: Opportunities and obstacles in primary care. *Brit. J. Gen. Pract.* **48**: 1779-1782, 1998.
- DEGENHARDT, L.J., CONIGRAVE, K.M., WUTZKE, S.E. AND SAUNDERS, J.B. The validity of an Australian modification of the AUDIT questionnaire. *Drug Alcohol Rev.* **20**: 143-154, 2001.
- DUNN, E.V., NORTON, P.G., STEWART, M., TUDIVER, F. AND BASS, M.J. Disseminating Research/Changing Practice, Thousand Oaks, CA: Sage, 1994.
- EDWARDS, G., ARIF, A. AND HADGSON, R. Nomenclature and classification of drug- and alcohol-related problems: A WHO memorandum. *Bull. World Hlth Organ.* **59**: 225-242, 1981.
- FLEMING, M.F., MUNDT, M.P., FRENCH, M.T., MANWELL, L.B., STAUFFACHER, E.A. AND BARRY, K.L. Brief physician advice for problem drinkers:

- Long-term efficacy and benefit-cost analysis. *Alcsm Clin. Exp. Res.* **26**: 36-43, 2002.
- GOMEL, M., SAUNDERS, J.B., BURNS, L., HARDCASTLE, D. AND SUMICH, M. Dissemination of early intervention for harmful alcohol consumption in general practice. *Hlth Prom. J. Aust.* **4**: 65-69, 1994.
- GOMEL, M.K., WUTZKE, S.E., HARDCASTLE, D.M., LAPSLEY, H. AND REZNIK, R.B. Cost-effectiveness of strategies to market and train primary health care physicians in brief intervention techniques for hazardous alcohol use. *Social Sci. Med.* **47**: 203-211, 1998.
- HALEY, N., MAHEUX, B., RIVARD, M. AND GERVAIS, A. Lifestyle health risk assessment: Do recently trained family physicians do it better? *Can. Fam. Physic.* **46**: 1609-1616, 2000.
- HEATHER, N. The public health and brief interventions for excessive alcohol consumption: The British experience. *Addict. Behav.* **21**: 857-868, 1996.
- HORNIK, J. Cognitive thoughts mediating compliance in multiple request situations. *J. Econ. Psychol.* **9**: 69-79, 1988.
- KANER, E.F., HEATHER, N., MCAVOY, B.R., LOCK, C.A. AND GILVARRY, E. Intervention for excessive alcohol consumption in primary health care: Attitudes and practices of English general practitioners. *Alcohol Alcsm* **34**: 559-566, 1999.
- KOTTKE, T.E., BREKKE, M.L., SOLBERG, L.I. AND HUGHES, J.R. A randomized trial to increase smoking intervention by physicians: Doctors helping smokers, round 1. *JAMA* **261**: 2101-2106, 1989.
- KREITMAN, N. Alcohol consumption and the preventive paradox. *Brit. J. Addict.* **81**: 353-363, 1986.
- LOCKYER, J., EL-GUEBALY, N., SIMPSON, E., GROMOFF, B., TOEWS, J. AND JUSCHKA, B. Standardized patients as a measure of change in the ability of family physicians to detect and manage alcohol abuse. *Acad. Med.* **71** (Suppl. No. 1): S1-S3, 1996.
- LOPEZ-DE-MUNAIN, J., TORCAL, J., LOPEZ, V. AND GARAY, J. Prevention in routine general practice: Activity patterns and potential promoting factors. *Prev. Med.* **32**: 13-22, 2001.
- MCAVOY, B.R., DONOVAN, R.J., JALLEH, G., SAUNDERS, J.B., WUTZKE, S.E., LEE, N., KANER, E.F., HEATHER, N., MCCORMICK, R., BARFOD, S. AND GACHE, P. General practitioners, prevention and alcohol: A powerful cocktail? Facilitators and inhibitors of practising preventive medicine in general and early intervention for alcohol in particular: A twelvenation key informant and general practitioner study. *Drugs Educ. Prev. Policy* **8**: 103-117, 2001.
- MCAVOY, B.R., KANER, E.F., LOCK, C.A., HEATHER, N. AND GILVARRY, E. Our healthier nation: Are general practitioners willing and able to deliver? A survey of attitudes to and involvement in health promotion and lifestyle advice giving. *Brit. J. Gen. Pract.* **49**: 187-190, 1999.
- MONTEIRO, M.G. AND GOMEL, M. World Health Organization project on brief interventions for alcohol-related problems in primary health care settings. *J. Subst. Misuse* **3**: 5-9, 1998.
- MOYER, A., FINNEY, J., SWEARINGEN, C.E. AND VERGUN, P. Brief interventions for alcohol problems: A meta-analytic review of controlled investigations in treatment-seeking and non-treatment seeking populations. *Addiction* **97**: 279-292, 2002.
- NHS CENTRE FOR REVIEWS AND DISSEMINATION. *Implementing Clinical Practice Guidelines*, York, England: University of York, 1994.
- NUTTING, P.A. Health promotion in primary medical care: Problems and potential. *Prev. Med.* **15**: 537-548, 1986.
- ORLANDI, M.A., LANDERS, C., WESTON, R. AND HALEY, N. Diffusion of health promotion innovations. In: GLANZ, K., LEWIS, F.M. AND RIMER, B.K. (Eds.) *Health Behavior and Health Education: Theory, Research and Practice*, San Francisco, CA: Jossey-Bass, 1990, pp. 288-311.
- OXMAN, A.D., THOMSON, M., DAVIS, D.A. AND HAYNES, R.B. No magic bullets: A systematic review of 102 trials of interventions to improve professional practice. *Can. Med. Assoc. J.* **153**: 1423-1431, 1995.
- REINGEN, P.H. AND KERNAN, J.B. Compliance with an interview request: A foot-in-the-door, self-perception interpretation. *J. Market Res.* **14**: 365-369, 1977.
- ROBERTSON, N., BAKER, R. AND HEARNshaw, H. Changing the clinical behaviour of doctors: A psychological framework. *Qual. Hlth Care* **5**: 51-54, 1996.
- RODNEY, W.M., NUTTER, D. AND WIDOFF, B. Recording patients' consumption of social drugs in a family medicine residency: A longitudinal study. *Fam. Pract.* **2**: 86-90, 1985.
- RUMPF, H-J., BOHLMANN, J., HILL, A., HAPKE, U. AND JOHN, U. Physicians' low detection rates of alcohol dependence or abuse: A matter of methodological shortcomings? *Gen. Hosp. Psychiat.* **23**: 133-137, 2001.
- RUSH, B., BASS, M., STEWART, M., MCCracken, E., LABREQUE, M. AND BONDY, S. Detecting, preventing, and managing patients' alcohol problems. *Can. Fam. Physic.* **40**: 1557-1566, 1994.
- RUSH, B.R., CROWE, T.G., POWELL, L.Y. AND ELLIS, K.S. Substance abuse facilitator model: Health promotion training for family physicians. *J. Contin. Educ. Hlth Prof.* **15**: 106-116, 1995.
- SAUNDERS, J.B., AASLAND, O.G., BABOR, T.F., DE LA FUENTE, J.R. AND GRANT, M. Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO Collaborative Project on Early Detection of Persons with Harmful Alcohol Consumption-II. *Addiction* **88**: 791-804, 1993.
- SAUNDERS, J. AND WUTZKE, K. World Health Organization Collaborative Study on Implementing and Supporting Early Intervention Strategies in Primary Health Care. Report on Strand I: General Practitioners' Current Practices and Perceptions on Preventive Medicine and Early Intervention for Hazardous Alcohol Use: A 16 Country Study, Copenhagen, Denmark: Regional Office for Europe, World Health Organization, 1998.
- SCHAFFNER, W., RAY, W.A., FEDERSPIEL, C.F. AND MILLER, W.O. Improving antibiotic prescribing in office practice: A controlled trial of three educational methods. *Amer. Med. Assoc.* **250**: 1728-1732, 1983.
- SHAW, S., CARTWRIGHT, A., SPRATLEY, T. AND HARWIN, J. *Responding to Drinking Problems*, Baltimore, MD: Univ. Park Press, 1978.
- SLAMA, K.J., REDMAN, S., COCKBURN, J. AND SANSON-FISHER, R.W. Community views about the role of general practitioners in disease prevention. *Fam. Pract.* **6**: 203-209, 1989.
- SPANDORFER, J.M., ISRAEL, Y. AND TURNER, B.J. Primary care physicians' views on screening and management of alcohol abuse: Inconsistencies with national guidelines. *J. Fam. Pract.* **48**: 899-902, 1999.
- THOM, B. AND TELLEZ, C. A difficult business: Detecting and managing alcohol problems in general practice. *Brit. J. Addict.* **81**: 405-418, 1986.
- WILSON, A., McDONALD, P., HAYES, L. AND COONEY, J. Health promotion in the general practice consultation: A minute makes a difference. *Brit. Med. J.* **304**: 227-230, 1992.
- WORLD HEALTH ORGANIZATION. *The Role of General Practice Settings in the Prevention and Management of Harm Done by Alcohol Use: Health for All*, Copenhagen, Denmark: Regional Office for Europe, World Health Organization, 1978.
- WORLD HEALTH ORGANIZATION. *The ICD 10 Classification of Mental and Behavioural Disorders: Clinical Descriptions and Diagnostic Guidelines*, Geneva, Switzerland: World Health Organization, 1992.
- WORLD HEALTH ORGANIZATION (Brief Intervention Study Group). A cross-national trial of brief interventions with heavy drinkers. *Amer. J. Publ. Hlth* **86**: 948-955, 1996.
- WORLD HEALTH ORGANIZATION. *Brief Intervention for Hazardous and Harmful Drinking: A Manual for Use in Primary Care*, WHO/MSD/MSB/01.6b, Geneva, Switzerland: Department of Mental Health and Substance Dependence, World Health Organization, 2001.
- WORLD HEALTH ORGANIZATION. *World Health Report 2002: Reducing Risks, Promoting Healthy Life*, Geneva, Switzerland: World Health Organization, 2002.
- WUTZKE, S.E., CONIGRAVE, K.M., SAUNDERS, J.B. AND HALL, W.D. The long-term effectiveness of brief interventions for unsafe alcohol consumption: A 10 year follow-up. *Addiction* **97**: 665-675, 2002.
- WUTZKE, S.E., GOMEL, M.K. AND DONOVAN, R.J. Enhancing the delivery of brief interventions for hazardous alcohol use in the general practice setting: A role for both general practitioners and medical receptionists. *Hlth Prom. J. Aust.* **8**: 105-108, 1998.
- WUTZKE, S.E., SHEIL, A., GOMEL, M.K. AND CONIGRAVE, K.M. Cost effectiveness of brief interventions for reducing alcohol consumption. *Social Sci. Med.* **52**: 863-870, 2001.