A RCT of three training and support strategies to encourage implementation of screening and brief alcohol intervention by general practitioners

EILEEN F S KANER

CATHERINE A LOCK

BRIAN R McAVOY

NICK HEATHER

EILISH GILVARRY

SUMMARY

Background. *Providing doctors with new research findings or clinical guidelines is rarely sufficient to promote changes in clinical practice. An implementation strategy is required to provide clinicians with the skills and encouragement needed to alter established routines.*

Aim. *To evaluate the effectiveness and cost-effectiveness of different training and support strategies in promoting implementation of screening and brief alcohol intervention (SBI) by general practitioners (GPs).*

Method. *Subjects were 128 GPs, one per practice, from the former Northern and Yorkshire Regional Health Authority, who agreed to use the 'Drink-Less' SBI programme in an earlier dissemination trial. GPs were stratified by previous marketing conditions and randomly allocated to three intensities of training and support: controls (n = 43) received the programme with written guidelines only, trained GPs (n = 43) received the programme plus practice-based training in programme usage, trained and supported GPs (n = 42) received the programme plus practice-based training and a support telephone call every two weeks. GPs were requested to use the programme for three months. Outcome measures included proportions of GPs implementing the programme and numbers of patients screened and intervened with.*

Results: *Seventy-three (57%) GPs implemented the programme and screened 11 007 patients for risk drinking. Trained and supported GPs were significantly more likely to implement the programme (71%) than controls (44%) or trained GPs (56%); they also screened, and intervened with, significantly more patients. Costs per patient screened were: trained and supported GPs, £1.05; trained GPs, £1.08; and controls, £1.47. Costs per patient intervened with were: trained and supported GPs, £5.43; trained GPs, £6.02; and controls, £8.19.*

Conclusion. *Practice-based training plus support telephone calls was the most effective and cost-effective strategy to encourage implementation of SBI by GPs.*

Keywords: research implementation, training and support strategies, brief alcohol intervention, economic evaluation.

E F S Kaner, BSc, PhD, MRC research training fellow; C A Lock, MA, BSc, research associate; and B R McAvoy, MD, FRCGP, head of school, Department of Primary Health Care, School of Health Sciences, The Medical School, University of Newcastle upon Tyne. N Heather, BA, PhD, consultant clinical psychologist; and E Gilvarry, MD, MRCPsych, consultant psychiatrist, Centre for Alcohol and Drug Studies, Newcastle City Health NHS Trust, Newcastle upon Tyne.

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Introduction

Research dissemination, involving the transfer of new information to a target audience, is an essential first step in getting health professionals to incorporate new research findings into clinical practice. However, the receipt of new knowledge is not sufficient to change clinical practices.[1] An implementation strategy is often required to provide health professionals with the skills and encouragement needed to alter established routines, particularly since new research findings may conflict with community norms, which may have been built up over long periods of time or by day-to-day contacts with colleagues.[2] The term 'implementation strategy' describes interventions that aim to translate knowledge into changes in practice.[3]

Despite a long-standing and strong evidence-base for the effectiveness of screening and brief intervention (SBI) by general practitioners (GPs) in reducing excessive alcohol consumption,[4-7] there is currently no evidence that this approach has been incorporated into routine practice. The provision of alcohol intervention materials[8,9] or checklists of risk factors for disease including alcohol[10] have not been sufficient to promote alcohol intervention in primary health care, although the receipt of diagnostic information and counselling directives about alcohol has been successful in increasing counselling by general medical interns.[11] Alcohol facilitators in general practice have produced equivocal results,[12,13] and intensive training and education sessions alone have produced either modest[14] or variable success rates.[15]

In a recent postal survey, GPs rated lack of support and a lack of training for doctors as the greatest barriers against incorporating SBI in primary health care.[16] Thus the current pragmatic controlled trial aimed to evaluate the effectiveness of three intensities of training and support in promoting implementation of SBI by GPs. This study was the second part of the UK arm of Phase III (Strand 3) of the World Health Organization (WHO) Collaborative Study on Disseminating and Implementing Brief Alcohol Intervention in Primary Health Care.[19] A cost-effectiveness analysis was carried out from the perspective of health researchers wishing to find an efficient means of implementing evidence-based health promotion in general practice.

Method

The sample consisted of 128 GPs, one per practice, who had taken up and agreed to use the 'Drink-Less' SBI programme[17] in an earlier dissemination trial.[18] GPs were stratified by previous marketing conditions (29 postal marketing, 51 telemarketing, 48 personal marketing) and then GPs in each stratum were random-

ly allocated, using a random number table, to three training/support conditions as follows: 43 controls, 43 training/no support GPs, and 42 training plus support GPs. Sample size calculations had been based on findings from an earlier Australian arm of the WHO study[19] and checked in a UK pilot study.

Training and support interventions were delivered by two researchers with a social sciences background. Since receptionists helped administer the programme, they received similar training and support interventions to GPs, but these data are reported elsewhere.[20] GPs and receptionists were requested to screen all eligible patients (adults aged 16 and over who were not repeat attenders and who understood the English language), using the Alcohol Use Disorders Identification Test (AUDIT),[21] for a period of three months. Receptionists handed out screening questionnaires to eligible patients while they waited to see the GP and then placed a sticker on patient files to prevent repeat screening; a tally-sheet was used to denote patients that were not screened. GPs scored questionnaires (using a template) and, if patients were identified as drinking at 'risk' levels (AUDIT score six or more for women and seven or more for men), GPs were directed to give five minutes of structured advice about alcohol, using a prompt card plus a follow-up booklet. All 128 GPs were offered a £50 voucher to compensate their practices for the extra administration work carried out by receptionists in this study.

The intensities of training and support

Control condition (*n* = 43). For the control group, the programme, containing written guidelines, was dropped-off at reception without demonstration. No training or support in programme usage was offered to GPs.

Training alone (*n* = 43). For GPs receiving training alone, they received the programme plus face-to-face training at their practices including having the programme set-up and demonstrated to them. GPs received no further advice or support on how to deliver the intervention.

Training plus support (*n* = 42). Those GPs receiving training and support received the programme plus the same face-to-face training, programme set-up, and demonstration as above. In addition, they received ongoing support and advice on how to deliver the intervention via fortnightly telephone calls throughout the three-month study.

Training and support issues

In addition to ensuring that GPs were familiar with programme materials and procedures, training dealt with a range of practical problems likely to be encountered during programme implementation, including difficulties with raising the topic of alcohol, dealing with negative patient reactions, and poor patient compliance.

Data collection and follow-up

In all three conditions, receptionists were telephoned two days after programme delivery to ensure that tallies were being used and that carbon copies of completed screening questionnaires were being collected.

Three months after programme delivery, all 128 GPs received a follow-up practice visit, which allowed researchers to debrief GPs and receptionists and to count any remaining programme materials. Researchers collected receptionists' tallies and carbon copies of screening questionnaires that were later scored to identify 'risk' drinkers and numbers of patients who were advised and/or given a booklet (GPs ticked two boxes on the questionnaire if they had carried out these activities).

Outcome measures

The outcome measures for the study were:

- *Implementation rate*. The number of GPs who screened at least one patient using the programme as a proportion of those GPs who agreed to implement it.
- *Screening rate*. The number of eligible patients who received a screening questionnaire divided by the total number of eligible patients who consulted the GP during the study.
- *Advice-giving rate*. The number of 'at risk' patients who were advised by the GP.
- *Booklet-giving rate*. The number of 'at risk' patients who were given booklets by the GP.
- *Overall intervention rate*. A product of screening and advising rates (advice-giving was the primary focus of intervention and a trigger for booklet-giving). Maximal intervention rate was achieved if GPs screened all eligible patients and advised all 'risk' drinkers.

Cost-effectiveness analysis

Costs of programme development and production were common across intervention conditions and were excluded from analysis. Costs of programme delivery, training, support, and follow-up were used to produce a cost per GP of each condition. Effectiveness measures, based on numbers of patients screened and intervened with in each condition, were used to calculate cost-effectiveness ratios.

Ethical approval

Ethical approval for this trial had been granted by 11 research ethics committees that covered the study area.

Statistical analysis

Data were analysed using the SPSS for Windows software package.[22] Data distributions were negatively skewed and so non-parametric statistics were reported. Differences between groups in outcome measures were determined using chi-squared and Fisher exact tests for proportions, Kruskal–Wallis tests for median rates, and Spearman's rank correlation coefficients.

Results

Programme implementation

Seventy-three GPs (57%) implemented the 'Drink-Less' programme and screened 11 007 patients, of whom 3531 (32%) were 'risk' drinkers, 2048 (58%) were given alcohol-related advice, and 1020 (29%) were given a booklet. There was a significant difference in implementation rates between the three training/support conditions ($\chi^2 = 6.47$, df = 2, P = 0.03), which were 44% (19) for controls, 56% (24) for trained GPs, and 71% (30) for trained and supported GPs. There were no significant differences between GPs from the three previous marketing conditions in implementation rates.

Assistance and incentives

Twenty-nine GPs, 40% of those who implemented the programme, obtained assistance from practice members other than receptionists, usually a practice nurse (90%). There was no significant difference between the three training/support conditions in proportions of GPs who received assistance with the programme, which were 47% (9) of controls, 46% (11) of trained GPs, and 30% (9) of trained and supported GPs. However, GPs with assistance in running the programme were significantly more likely to implement it (Fisher exact; *P* = 0.011). Fifty-four GPs, 74% of those who implemented the programme, claimed the £50 voucher that was offered to all practices. There was sig-

nificant difference in proportions of GPs from the three training/support conditions who claimed the voucher (χ^2 = 7.4, df = 2, *P* = 0.02): 30% (12) of controls, 42% (18) of trained GPs, and 57% (24) of trained and supported GPs.

Extent of programme implementation

The extent of programme implementation in the three training/support conditions is shown in Table 1. There was a significant difference between GPs in the three training/support groups in the median number of patients screened (Kruskal–Wallis χ^2 = 10.9, df = 2, *P* = 0.004) and the median number of 'risk' drinkers identified (Kruskal–Wallis χ^2 = 8.8, df = 2, *P* = 0.012). Screening and identification of 'risk' drinking were positively correlated (Spearman's r = 0.97, *P*<0.001). There was also a significant difference between GPs in the three training/support groups in the median number of patients given alcohol-related advice (Kruskal–Wallis χ^2 = 12.2, df = 2, *P* = 0.002), and a follow-up booklet (Kruskal–Wallis χ^2 = 10.6, df = 2, *P* = 0.005). Advice and booklet giving were positively correlated (Spearman's r = 0.97, *P* = 0.01). On each measure, trained and supported GPs used the programme most extensively.

General practitioners' indications of intervention activity were corroborated by counts of materials at follow-up: the number of patients that GPs reported screening negatively correlated with numbers of remaining questionnaires (Spearman's r = -0.99, *P* = 0.01), and the number of booklets they reported giving to patients negatively correlated with numbers of remaining booklets (Spearman's r = -0.93, *P* = 0.01).

Accuracy of programme implementation

Table 2 reports accuracy measures of programme implementation. There was a significant difference between the three training/support conditions in median screening rates (Kruskal–Wallis χ^2 = 9.53, df = 2, *P* = 0.008), with trained and supported GPs producing the highest median screening rate. However, there was no significant difference between the three training/support conditions in advice or booklet-giving rates. There was a significant difference between GPs from the three training/support conditions in overall intervention rate (Kruskal–Wallis χ^2 = 10.76, df = 2, *P* = 0.005), with trained and supported GPs showing the highest rate.

Economic evaluation

The total cost of delivering training and support in this trial was £12 600.67. The breakdown of costs per training/support condition is shown in Table 3. Cost-effectiveness ratios were produced for measures of screening and overall intervention rate. Costs per patient screened were: trained and supported GPs, £1.05; trained GPs, £1.08; and controls, £1.47. Costs per patient intervened with were: trained and supported GPs, £5.43; trained GPs, £6.02; and controls, £8.19.

Discussion

All GPs in the study received brief intervention materials with written guidelines on how to implement the programme. The incremental effects of training alone and training plus telephone support on programme implementation were then evaluated. The potential of primary health care as a setting for prevention of alcohol problems was underscored by the fact that just 73 GPs screened over 11 000 patients and identified 3500 'at risk' drinkers during a three-month period.

Supported GPs were most likely to implement the programme and screened patients more extensively; however, they were no more likely than other GPs to deliver advice and booklets to 'at risk' patients. Only 58% of 'risk' drinkers received alcohol-related advice and 29% received the follow-up booklet. It is not clear whether the short-fall in advice and booklet-giving was owing to the GPs' lack of confidence in the acceptability of the programme to some patients or the GPs' lack of comfort when advising particular patients. Future work should investigate these issues, particularly since GPs in this study were highly motivated doctors who had previously agreed to use the brief intervention programme and were not representative of GPs in general.

Given the relatively low costs of providing telephone support, training plus support was the most cost-effective strategy for encouraging GPs to implement SBI once agreement to do so had been obtained.[18] However, it should be noted that only 10% of the original random sample of 729 GPs in the WHO study actually implemented the programme.[20] Also, 40% of GPs who implemented the programme enlisted help from other health professionals, usually practice nurses. Different practices used the programme to varying extents (the number of patients screened in this study ranged from nine to 590), and most practices ceased using the programme once the study was completed. Thus, although appropriate training and support strategies can influence more motivated primary health care professionals to become involved in brief alcohol intervention, there are currently significant structural and organizational barriers to longer term, systematic implementation.[23]

Facilitating professional behaviour change towards an innovation is a complex issue with clearly defined stages that have been outlined in health literature,[2] social policy,[24] and the business and human resources literature.[25] An effective change strategy requires a strong and robust evidence base; identification of environmental, organizational, and individual barriers to change; and appropriately targeted interventions that maximize facilitating factors for the innovation while minimizing any barriers. Given the strong evidence-base for brief alcohol intervention, the prospects for implementing this approach in primary health care are good. However, researchers must be aware that different groups of people within a system may have different barriers to the innovation and different speeds of acceptance of change. Most GPs and nurses in this study reported positive views about their involvement with the programme, but receptionists reported less positive views.[20] This trial primarily met the training and support needs of GPs and, to a lesser extent, those of their receptionists. Less focus was given to the primary health care nurses who were often brought in to administer the programme. Future studies should strive to identify all the players in the system and adjust dissemination and implementation interventions to meet the needs of each. We are currently conducting a study of nurse-led brief alcohol interventions to address this issue.

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Address for correspondence

Dr Eileen F S Kaner, Department of Primary Health Care, School of Health Sciences, The Medical School, Framlington Place, University of Newcastle upon Tyne, Newcastle upon Tyne NE2 4HH. E-mail:

Table 1. Extent of implementation: total and median number (interquartile range) of patients screened and intervened with by GPs (n = 128) in the three training/support conditions.

Intervention item	Control (*n* = 43)	Training (*n* = 43)	Training and support (*n* = 42)	Total
Patients screened (*n*)	2160	3691	5156	11007
median (interquartile range)	0 (0–94)	13.0 (0–163)	99.5 (0–190)	38 (0–158)
Patients at risk (*n*)	750	1127	1654	3531
median (interquartile range)	0 (0–40)	7.0 (0–41)	28.0 (0–64)	11 (0–44)
Patients advised (*n*)	390	662	996	2048
median (interquartile range)	0 (0–5)	0 (0–22)	10.5 (0–39)	0 (0–26)
Patients given booklets (*n*)	199	335	486	1020
median (interquartile range)	0 (0–3)	0 (0–8)	4.5 (0–14)	0 (0—9)

Table 2. Accuracy of implementation: median (interquartile range) programme activity rates for GPs (*n* = 128) in the three training/support conditions.

Activity rates	Controls (*n* = 43)	Training (*n* = 43)	Training and support (*n* = 42)
Screening rate	0% (0–10%)	2% (0–12%)	10% (0–23%)
Advice-giving rate	41% (0–72%)	55% (14–72%)	59% (30–90%)
Booklet-giving rate	17% (0–34%)	17% (6–43%)	22% (12–29%)
Overall intervention rate	0% (0–2%)	0% (0–8%)	3% (0–16%)

Table 3. Costs of promoting implementation: training and support costs for GPs (n = 128) in the training/support conditions.

Costed item	Controls (n = 43)	Training (n = 43)	Training and support (n = 42)
Staff time mailing extra materials @ £5 per hour	£17.17	£22.33	£28.08
Extra materials and questionnaires	£132.54	£72.45	£175.95
Postage	£33.05	£37.01	£64.16
Telephone calls to practice @ 5p per minute	£20.30	£21.10	£38.05
Staff time calling GP @ £5 per hour	£33.83	£35.17	£63.42
Staff time travelling to practices @ £5 per hour	£261.08	£375.50	£636.25
Mileage1 (80 miles or less) @ 36p per mile	£634.32	£903.24	£1358.64
Mileage2 (over 80 miles) @ 18p per mile	£109.35	£205.92	£436.41
Staff time in contact/waiting at practice @ £5 per hour	£82.17	£147.00	£172.50
Vouchers claimed @ £50	£600.00	£900	£1200.00
Programme of materials @ £29.56	£1271.08	£1271.08	£1241.52
Total training/support cost	£3194.89	£3990.80	£5414.98
Cost per GP trained/supported	£74.29	£92.80	£128.92
Number of patients screened per GP	50.23	85.83	122.76
Cost/effectiveness: screening	1.47	1.08	1.05
Number of patients intervened with per GP	9.06	15.39	23.71
Cost/effectiveness: intervention	8.19	6.02	5.43