

A randomized controlled trial of the effect of providing information on accidental injury admissions and their costs to Primary Care Groups and Trusts

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Background. Primary Care Groups and Trusts (PCG/Ts) are responsible for improving the health of local populations, but there is little evidence of their strategic involvement in accident prevention.

Objective. To determine the effect of providing information on local accidental injuries to PCG/Ts on the development of accident prevention strategies.

Methods. The study is a randomized controlled trial in PCG/Ts in the former Trent Region. Intervention PCG/Ts were sent profiles containing PCG/T specific information on hospital admissions for accidental injury and their costs and on accident prevention interventions. Health promotion leads were surveyed at baseline and three and fifteen months. The primary outcome was whether the PCG/T had a written accident prevention strategy. Secondary outcome measures included other accident prevention activities, prioritization of accident prevention, and knowledge and attitudes towards accident prevention.

Results. At three months 38% of PCG/Ts in the intervention arm had a written accident prevention strategy, compared with 42% in the control arm [difference –4%, 95% confidence interval (CI) –31% to 25%]. At fifteen months these values were 55% in the intervention arm and 50% in the control arm (difference 5%, CI –24% to 33%). There were no statistically significant differences between the groups for any outcome measures.

Conclusions. Providing profiles containing information on accidental injuries to PCG/Ts did not significantly increase the development of accident prevention strategies, however this study only had sufficient power to detect substantial changes. Larger national studies would be required to detect moderate effects of tailored packages in changing PCG/T behaviour.

Keywords. Accidents, education, injuries, prevention, primary care.

Introduction

Primary Care Groups (PCGs) were established in England in 1999, as part of the governments' reform of the National Health Service. Subsequently these merged into Primary Care Trusts (PCTs). The 1999 UK Government's public health strategy for England,¹

made Primary Care Groups and Trusts (PCG/Ts) responsible for improving the health of the populations they serve, including responding to national priorities. In the same strategy, four national priorities were identified: accidental injuries, cancer, coronary heart disease and stroke, and mental health.¹

Although PCG/Ts have started to undertake some accident prevention activity,² few had a written accident prevention strategy in 2000, and most undertaking accident prevention were doing so without a strategy.³ As PCG/Ts are relatively new organizations there is little evidence on interventions for effecting change within them to date. We studied the hypothesis that providing PCG/Ts with PCG/T specific printed information about

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accidental injury admissions and their costs and on interventions to reduce accidental injuries, would increase development of accident prevention strategies and change attitudes towards accident prevention.

Methods

Participants

We conducted a randomized controlled trial with PCG/Ts in the former Trent Region as the units of randomization. Forty-nine of the 51 PCG/Ts in Trent Region were included; two were excluded because of incomplete admissions data on which to base the intervention.

Intervention

There was no intervention in the control arm. In the intervention arm an injury profile was sent to each PCG/T board member. It contained PCG/T specific numbers and rates of admission to hospital for accidental injury, the length of hospital stay, estimated hospital costs (derived using HRG software) and the number of deaths in hospital following admission. It also described the main types of injury in the PCG/T and identified the five most common injury mechanisms resulting in admission in four age groups (<5, 5–15, 16–24, 75+ years). Admission rates for Trent Region as a whole were presented for comparison. These data were obtained by analysing accidental injury admissions data from Trent National Health Service Regional Admissions database from 1 April 1992 to 31 March 1997.⁴ The profile also included information on effective accident prevention interventions for the five most common injury mechanisms in the four age groups in each PCG/T. These interventions were identified from literature searches.

Primary and secondary outcome measures

The primary outcome measure was whether the PCG/T had a written accident prevention strategy or action plan, assessed at three and fifteen months post intervention. Secondary outcome measures, assessed three months after the intervention, included other accident prevention action taken by the PCG/T, whether the PCG/T was involved in accident prevention activity and the priority given to accident prevention out of the four national priority areas.¹ Additional secondary outcome measures were the health promotion lead's knowledge of their PCG/T's hospital admissions for accidental injury, perceptions of effective accident prevention strategies and their attitudes towards accident prevention by PCG/Ts.

Assessment of baseline and follow-up measures

We sent a baseline questionnaire to the health promotion lead in each PCG/T in April 2000, covering attitudes and knowledge about accident prevention, current accident prevention activity and the priority

given to accident prevention within the PCG/T. A similar follow-up questionnaire was sent to each health promotion lead in March 2001, three months after the intervention profiles had been sent. This questionnaire also included three knowledge questions asking which accident mechanism resulted in most hospital admissions in the respondent's PCG/T in each of three age groups (0–15, 16–24, 75+ years).

Fifteen months after sending the intervention profiles, a further questionnaire was sent to each health promotion lead in March 2002, asking only whether their PCG/T had a written accident prevention strategy or action plan.

Sample size and randomization

Assuming 12% (3/25) of control arm PCG/Ts had a written accident prevention strategy (pilot data), our sample had 83% power at the 5% two-sided significance level to detect an increase to 54% (13/24 PCG/Ts) in the intervention arm.

A member of the research group who was blind to the identity of the PCG/T, randomized PCG/Ts to the control or intervention arm using a computer generated randomization list, stratified by whether the PCG/T had an accident prevention strategy at baseline.

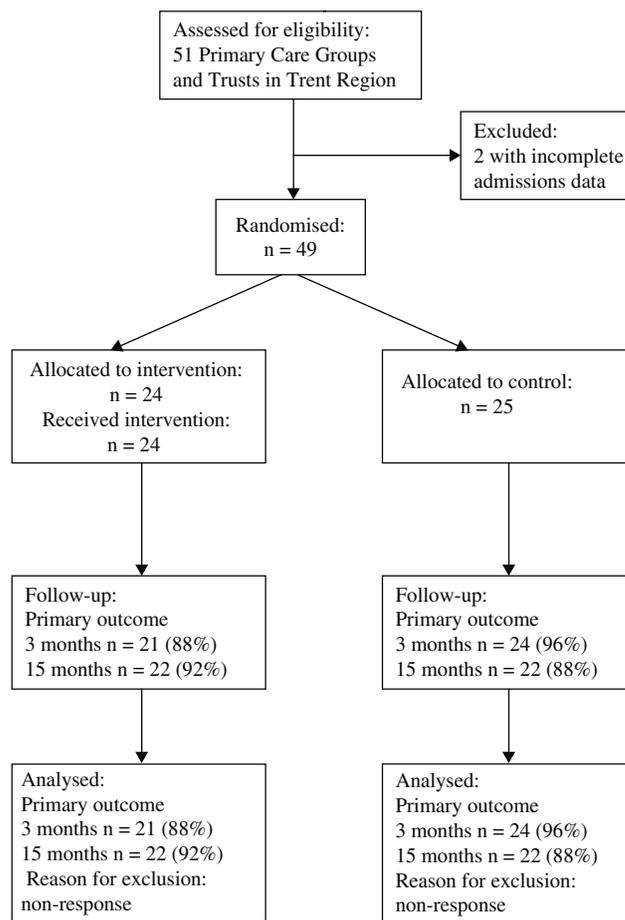


FIGURE 1 Flow of Primary Care Groups and Trusts through Trial

TABLE 1 Action taken by PCG/T in terms of accident prevention at baseline and after the intervention

	After intervention				At baseline				P value ¹	P value ²
	Control		Intervention		Control		Intervention			
	n	(%)	n	(%)	n	(%)	n	(%)		
<i>Three month outcomes</i>										
Has a written strategy/action plan										
No	14	(58)	13	(62)	16	(73)	13	(68)	1.00	0.49
Yes	10	(42)	8	(38)	6	(27)	6	(32)		
Missing	1		3		3		5			
Agreed to take action										
No	11	(55)	10	(53)	9	(43)	12	(67)	1.00	0.94
Yes	9	(45)	9	(47)	12	(57)	6	(33)		
Missing/NA	5		5		4		6			
Taken action										
No	11	(55)	9	(47)	12	(57)	13	(72)	0.88	0.89
Yes	9	(45)	10	(53)	9	(43)	5	(28)		
Missing	5		5		4		6			
Formally discussed at PCG/T board meeting										
No	14	(70)	11	(58)	8	(38)	11	(61)	0.65	0.58
Yes	6	(30)	8	(42)	13	(62)	7	(39)		
Missing/NA	5		5		4		6			
Discussed at sub-group or other meeting										
No	9	(45)	6	(32)	–		–		0.60	–
Yes	11	(55)	13	(68)						
Missing/NA	5		5							
Agreed to discuss at a later date										
No	17	(85)	16	(84)	17	(81)	14	(78)	1.00 (F)	0.81
Yes	3	(15)	3	(16)	4	(19)	4	(22)		
Missing/NA	5		5		4		6			
PCG/T involved in accident prevention										
No	4	(20)	3	(16)	5	(23)	7	(33)	1.00 (F)	0.63
Yes	16	(80)	16	(84)	17	(77)	14	(67)		
Missing/NA	5		5		3		3			
<i>Fifteen month outcome</i>										
Has written a strategy/action plan										
No	11	(48)	10	(45)	16	(73)	13	(68)	1.00	0.34
Yes	11	(50)	12	(55)	6	(27)	6	(32)		
Missing	3		2		2		5			

P value¹ from chi-square test with continuity correction or Fishers exact test (F) comparing randomization groups after intervention; P value² from logistic regression adjusting for baseline values.

Statistical methods

Analyses were undertaken at the level of the PCG/T using chi-squared tests with continuity corrections or Fisher’s Exact tests to compare binary outcome variables and Mann–Whitney U tests to compare numerical outcomes using SPSS (version 10). Adjustment was made for baseline values where appropriate.

Results

Participant flow

The response rate to the baseline questionnaire was 94% (46/49) and to the three month follow-up questionnaire was 80% (39/49). Information on the primary

outcome at the three month follow-up was obtained for an additional six PCG/Ts by telephone, giving 21 responses in the intervention arm (88%) and 24 in the control arm (96%) (see Fig. 1). The response rate to the fifteen month follow-up was 90% (44/49).

Outcomes and estimation

Three months after the intervention, 8 PCG/Ts in the intervention arm (8/21, 38%) and 10 in the control arm (10/24, 42%) reported that they had a written accident prevention strategy (Table 1). This difference was not statistically significant [–4%, 95% confidence interval (CI) –31% to 25%, P = 1.00]. At fifteen months follow-up 12 PCG/Ts in the intervention arm (12/22, 55%) and 11 in the control arm (11/22, 50%) reported that they had a

written accident prevention strategy (Table 1), which again was not a statistically significant difference (5%, CI -24% to 33%, $P = 1.00$).

Secondary outcome measures

There were no statistically significant differences between the arms for any other accident prevention actions taken by PCG/Ts (Table 1). There were no significant differences in the perceived effectiveness of a range of accident prevention interventions between health promotion leads in the two arms (data not shown). A higher proportion of health promotion leads in the intervention arm than the control arm gave correct answers to all three local knowledge questions (43% versus 14%), but this difference was not statistically significant ($P = 0.21$). The priority given to accidents and the attitude score towards injury prevention were similar in both arms (data not shown).

Discussion

This is the first report of a randomized controlled trial to determine the effect of providing information on accidental injury to PCG/Ts. We found no significant effect of providing this information on the development of accident prevention strategies by PCG/Ts or on the knowledge or attitudes of the health promotion leads in the PCG/Ts towards accident prevention.

We achieved a high response rate for our primary outcome measure, however the study only had sufficient power to detect a large effect of the intervention. The follow-up was carried out at a time of major organizational change for PCG/Ts which may have reduced any potential influence of the intervention.

Only half of the PCG/Ts in this study had a written accident prevention strategy at the end of the study. This is of concern because having a written strategy suggests the PCG/T has formally considered the importance of accidental injury to their purpose and formulated plans for action. Rigorously developed clinical guidelines can bring benefits for patients and health care providers.⁵ The literature on changing health professional behaviour suggests that behavioural change is more often achieved by complex interventions, including the use of feedback, peer-comparison feedback, information about costs,

academic detailing, outreach visits or local opinion leaders.⁶ Our intervention did include peer comparison feedback and information about costs, but a more complex intervention may have been more effective. This would require a more labour intensive and costly intervention and should be the subject of a further and larger study.

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Declaration

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Ethical approval: approval was obtained from Trent Multi-Centre Ethics Research Committee and all Local Ethics Research Committees in Trent.

Conflicts of interest: none.

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