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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\textbf{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.

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

\textbf{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.

\textbf{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 \(\pm 4\%), 95\% \text{ confidence interval (CI)} \pm 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.

\textbf{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.

\textbf{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,\textsuperscript{1}

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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.\textsuperscript{1}

Although PCG/Ts have started to undertake some accident prevention activity,\textsuperscript{2} few had a written accident prevention strategy in 2000, and most undertaking accident prevention were doing so without a strategy.\textsuperscript{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
accidental injury admissions and their costs and on inter-
ventions 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 randomiza-
tion. 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 acci-
dental 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 Admis-
sions database from 1 April 1992 to 31 March 1997. 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 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 admis-
sions 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 con-
trol or intervention arm using a computer generated
randomization list, stratified by whether the PCG/T had
an accident prevention strategy at baseline.

Assessment of baseline and follow-up measures
We sent a baseline questionnaire to the health pro-
motion lead in each PCG/T in April 2000, covering
attitudes and knowledge about accident prevention,
current accident prevention activity and the priority

![Figure 1: Flow of Primary Care Groups and Trusts through Trial](image-url)
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\%\mper\%, 95\%\mper\%\ C I \ G \ G - 31\%\mper\%\mper\%, \ P = 1.00\%] at the 15-month follow-up. 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. 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. 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.

References