Systematic review of the effectiveness of community pharmacy-based interventions to reduce risk behaviours and risk factors for coronary heart disease

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CRD summary
This review looked at the effects of community pharmacy-based interventions to reduce risk factors for coronary heart disease. The authors concluded that pharmacies can make a useful contribution to reducing risk. Some of the methods of the review were unclear and some information in the paper was confusing. It is difficult to assess the reliability of the results.

Authors' objectives
To review published evidence relating to the effects of community pharmacy-based interventions in reducing risk behaviours and risk factors for coronary heart disease (CHD).

Searching
MEDLINE, EMBASE, the Cochrane Library and International Pharmaceutical Abstracts were searched from 1 January 1990 to February 2001; the search terms were given. Handsearches for the same period were also undertaken. These covered Health Education Journal, International Journal of Pharmacy Practice, Journal of Social and Administrative Pharmacy, Pharmacy World and Science, Annals of Pharmacotherapy (1992 onwards), Drug Intelligence and Clinical Pharmacy (1990 to 1991), Pharmaceutical Journal, Scanner, and abstracts of the British Pharmaceutical Conference and Health Services and Pharmacy Practice Research Conference. All searches included non-English language literature. However, the authors stated that where papers were in a language other than English, only those with English abstracts were considered for inclusion.

Study selection
Study designs of evaluations included in the review
The authors did not specify any inclusion or exclusion criteria for the study design. The studies included in the review were randomised controlled trials (RCTs), before-and-after studies and observational studies. Some of the RCTS randomised by individual and some by pharmacy.

Specific interventions included in the review
The authors did not specify any inclusion or exclusion criteria for the intervention other than 'community pharmacy activity'. The studies included were of community pharmacy-based interventions aimed at smoking cessation and lipid management. In the included studies, the interventions consisted of combinations of education, counselling and advice given to patients, and training of pharmacists. Some of the smoking cessation studies involved nicotine replacement therapy. Some of the participants in the lipid management studies were assessed for cardiovascular risk including cholesterol levels. In addition, the authors also described pharmacy-based studies aimed at identifying people at risk of high blood-pressure or lipid levels through record checking.

Participants included in the review
The authors did not specify any inclusion or exclusion criteria for the participants, although the review appeared to focus on patient rather than pharmacist outcomes. The participants in the smoking cessation studies appeared to be current smokers and those seeking advice on smoking cessation or nicotine replacement therapy. The participants in the lipid management studies appeared to be those at increased risk of CHD, e.g. as identified by their patient medication records.

Outcomes assessed in the review
The authors did not specify any inclusion or exclusion criteria for the outcomes. The outcome measures in the smoking cessation studies included smoking cessation (self-reported or cotinine validated), smoking cessation consultations, and
pharmacists' perceptions of their smoking cessation counselling. The outcomes in the lipid management studies included: lipid levels, achievement of target lipid levels, addition or modification of lipid-lowering therapy, CHD or cardiovascular disease risk factor scores, treatment adherence, patient satisfaction, quality of life, physician visits, adverse drug events and pharmacists' knowledge.

How were decisions on the relevance of primary studies made?
Three authors separately examined lists of titles and abstracts from the searches and compared inclusion and exclusion lists. Any differences were resolved through discussion.

Assessment of study quality
The Health Development Agency's Evidence Base 2000's standards for transparency, systematicity and relevance were applied to each paper. Each study was also allocated an evidence grade using categories used by the Department of Health in the National Service Frameworks. The criteria used were not stated. The authors did not state how the papers were assessed for validity, or how many reviewers performed the validity assessment.

Data extraction
The data were abstracted and entered into a matrix. Two authors independently abstracted a sub-sample of 6 papers and compared the findings. This implies that the rest of the studies were abstracted by one author. Any differences were resolved through discussion. The extracted data included details of the study design, interventions and results.

Methods of synthesis
How were the studies combined?
The authors used tables and a narrative discussion to synthesise the studies. The studies were grouped by intervention type (smoking cessation or lipid management), and within this grouping by study design (RCTs or non-randomised studies).

How were differences between studies investigated?
Differences between the studies were not discussed explicitly, although the studies were grouped in the narrative.

Results of the review
The authors said that they included 5 studies on smoking cessation, 2 RCTS (976 participants) and 3 other experimental studies; only two of these other studies were presented in the tables (636 pharmacies). They also said that they included 4 studies on lipid management: 2 RCTS (616 participants) and 2 observational studies. However, 4 non-RCTS (one observational study with 397 participants and 3 before-and-after studies with 615 participants) were listed in the tables. The authors also included 3 studies using pharmacy records to identify those at risk.

Smoking cessation.
One RCT on smoking cessation showed a significant effect of pharmacist training on cotinine-validated smoking cessation (14% abstinent in intervention group versus 3% of controls, P<0.001) at 12 months' follow-up. In the second RCT, 12% of the intervention group and 7% of the control group self-reported that they no longer smoked (P not statistically significant). The results of the non-randomised studies were unclear. In one study that used a before-and-after design to assess the outcomes, 33% of the participants said they had stopped smoking at one year. Pharmacists who had received training appeared more likely to ask key questions, use written information and refer to the doctor.

Blood lipid management.
One RCT showed 58% of the patients in the intervention group benefited (i.e. either improved cholesterol profile, or started or modified cholesterol-lowering medication) compared with 30% of the controls (P<0.001). The 10-year risk of cardiovascular disease in the intervention group decreased during the 4-month study period from 17.3 to 16.4% (P<0.0001). In a second RCT, 32% of the intervention group and 15% of the controls reached target lipid levels at 6 months. Risk factor scores improved in the intervention group but not the control group. Significance levels were not
reported.

One before-and-after study indicated that the patients' total lipid and low-density lipid levels were significantly decreased at 12 months compared with baseline or 6 months (P<0.02). A 2-year observational study indicated target lipid levels were achieved by 62.5% of the patients.

In studies where pharmacists' records were used to identify those at risk, the uptake for invitation to testing was relatively low in most studies.

Cost information
A health economic analysis of the RCTs on smoking cessation indicated that the cost of using intensive rather than standard pharmaceutical support was £83 per life-year saved in the Scottish trial, while the cost per life-year saved in the intervention arm ranged from £197 to £351 for men and £181 to £722 for women in the Northern Ireland trial. The costs of pharmacist lipid interventions were estimated in the Canadian trial: costs to the government health care funders were Can$6.40 per patient per 4 months (covering physician visits and tests) and costs to the community pharmacy manager were Can$22 per 4 months.

Authors' conclusions
The peer-reviewed literature demonstrated the contribution of community pharmacy-based services to the reduction of risk behaviours and risk factors for CHD. The authors stated that the evidence supports the wider provision of smoking cessation and lipid management through community pharmacies.

CRD commentary
The aims of this review were only partially stated as the inclusion and exclusion criteria were not described clearly. The authors chose to limit the search for this review from 1990 as they said this was updating a previous review (see Other Publications of Related Interest). The literature search was conducted on several databases. No language restrictions were applied to the search, but only those (non-English) studies with English abstracts appear to have been assessed for inclusion. Unpublished studies do not seem to have been sought. It is possible that studies were missed.

Efforts to minimise bias in the study selection and data extraction processes were made, but data from some studies seem to have been extracted by only one author and not checked. The authors said that they assessed the validity of the primary studies, but it was unclear how these assessments were made, or how they were used to inform the results of the review. There appears to be conflicting information in the tables and the text as to which studies were included. In addition, the use of labels and reference numbers to identify studies was inconsistent and is confusing. Some references to included studies appear to be missing. Extracted data (e.g. numbers of pharmacies and patients involved in each study, and the significance level of the results) were not always clearly presented in the paper, making it difficult to compare the studies and assess the available evidence.

The authors concluded that, overall, the literature 'provides evidence of the effectiveness of community pharmacy's contribution in smoking cessation and lipid management', but the evidence presented for smoking cessation is equivocal. Of the 2 RCTs included, only one showed a significant effect of the intervention on smoking cessation rates. Both RCTs on lipid management appeared to show positive results, but the significance levels were only given for one trial, thus making it difficult to assess the strength and consistency of the results.

Implications of the review for practice and research
Practice: The authors stated that health commissioners and planners can use the findings of this review to incorporate community pharmacy-based health development activities into local health services.

Research: The authors stated that further research into the contribution of community pharmacies to disease detection and case finding, as part of local public health strategies, is needed.
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Bibliographic details

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Other publications of related interest

This additional published commentary may also be of interest. Community pharmacy-based interventions can reduce risk behaviour and risk factors for coronary heart disease. Evidence-based Healthcare 2004;8:21-23.

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.