

The contribution of community pharmacy to improving the public's health

REPORT 1

Evidence
from the
peer-reviewed
literature
1990–2001

Claire Anderson
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**Royal
Pharmaceutical
Society**
of Great Britain

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FOREWORD

The modernisation of the NHS has highlighted the Government's intent to improve the public's access to health services, information on preventing ill health and support for self-care.¹ Community pharmacies are in a strong position to contribute to this agenda with around 12 000 dedicated premises in the UK² creating an informal network of 'drop in' access points for health care services, medicines and advice on health and well-being.

It has been estimated that over six million people visit pharmacies every day.³ Many pharmacy staff work in premises that are sited within local communities and shopping precincts where they provide easy access to the public without the need for an appointment. The informal nature of contact with a pharmacy creates an experience for users which is more similar to a 'consumer' than as a 'patient'. Visitors to pharmacies come from all sectors of the population and research has shown that local pharmacy services are particularly valued by those without easy access to a car or public transport.⁴ In recognition of this potential the recent Health Committee Inquiry into Public Health⁵ recommended that *'the Government takes steps for community pharmacists to play a more active role in public health'*.

As a result of these characteristics there is an opportunity for pharmacy staff to give advice and support on health or medicines to a significant proportion of the population on a regular or ad hoc basis. Much of this advice is given with prescriptions and the treatment of minor illnesses, however, some pharmacies also provide other services to improve health, such as help with smoking cessation, dietary advice, and testing of blood

1 Department of Health (2000). *The NHS Plan: A Plan for Investment. A Plan for Reform*. London: The Stationery Office.

2 Source: Royal Pharmaceutical Society of Great Britain (2001). Statistics of pharmacists and registered premises. <http://www.rpsgb.org.uk/pdfs/registerstats.pdf> (This figure excludes hospital and primary care-based pharmacies.)

3 Royal Pharmaceutical Society of Great Britain (1993). *Pharmaceutical Care: The Future for Community Pharmacy. A Report of the Joint Working Party on the Future Role of the Community Pharmaceutical Services*. London: RPSGB.

4 Royal Pharmaceutical Society of Great Britain (1996). *Baseline Mapping Study to Define Access and Usage of Community Pharmacy*. London: RPSGB.

5 House of Commons Health Committee (2001). *Second Report on Public Health*, vol I: *Recommendation*: xvii. London: The Stationery Office.

pressure and cholesterol. The provision of these latter services, however, is not universal and there has been no systematic evaluation of the evidence on their contribution to public health. To help assess the value of these services delivered through pharmacy, the Royal Pharmaceutical Society of Great Britain (RPSGB)⁶ and the charity PharmacyHealthLink⁷ commissioned a review of the UK and international evidence-base health improvement in order to determine which activities are most likely to be effective in a pharmacy setting and how they might best be provided.

The review demonstrates that certain services are both sufficiently well-researched and well-received by pharmacy users at an international level, for example in smoking cessation, lipid management in the prevention of coronary heart disease, immunisation and emergency contraception, that recommendations for their widespread implementation in the UK can be made. Other services also show promise but are less well-researched and require more evaluation before an assessment of their effectiveness and suitability in a pharmacy setting can be determined.

This review can help to shape the contribution of community pharmacists to a modernised health service. It provides useful evidence to those involved in the planning and provision of health services to prevent illness and maintain health. Funding bodies and commissioners may wish to use its findings to develop pharmacy services to contribute further to their health improvement plans and local targets.



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President
Royal Pharmaceutical
Society of Great Britain

⁶ RPSGB is the regulatory and professional development body for pharmacy in England, Scotland and Wales. It has responsibility for the registration of pharmacists and pharmacy premises as well as overseeing the development of pharmacy practice.

⁷ PharmacyHealthLink is an independent charity with the principal aim of developing the public health contribution of pharmacy through research, training and education.

EXECUTIVE SUMMARY

Aim

The purpose of this literature review is to provide a critical and comprehensive overview of the peer-reviewed evidence relating to the contribution of pharmacy to improving the public's health both in the UK and internationally from 1990 to 2001.

Background

Community pharmacies and pharmacists have the potential to contribute to the public's health and there is a history of over two decades of developmental work in this setting in the UK. The position of community pharmacies straddles both public and private sectors, the former primarily through a nationally-negotiated NHS contract to dispense prescriptions. Pharmacies' dual health and commercial roles offer a unique opportunity to target activities towards healthy people as well as those with existing health problems. For this to occur in the most effective way, service commissioners need access to the evidence of potential benefit, hence the current literature review.

Method

The electronic databases, searched from 1 January 1990 to 1 February 2001 were: MEDLINE; EMBASE; Cochrane Library; and International Pharmaceutical Abstracts. Hand searches for the same period were undertaken of specific journals including the *Health Education Journal*, *International Journal of Pharmacy Practice*, *Journal of Social and Administrative Pharmacy*, *Pharmaceutical Journal*, *Scanner*, and abstracts of the British Pharmaceutical Conference and Health Services & Pharmacy Practice Research Conference.

Data abstracted from publications included: participants/setting; intervention; outcome measures; key findings; training.

Results

The review covers 35 trials/experimental studies presented in 40 papers (18 UK; 14 US and Canada; 8 other Europe) and 34 descriptive studies (14 UK; 12 US and Canada; 8 other). The studies were heterogeneous in terms of design and outcome measures. The robustness of study design was variable.

Most of the trials and experimental studies demonstrate a positive effect from pharmacists' input, although many are small in scale. There is good clinical and cost-effectiveness evidence from UK randomised controlled trials (RCTs) in smoking cessation, and from US and Canadian RCTs in lipid management in the prevention of heart disease. This evidence supports the wider provision of these services through community pharmacies.

In RCTs for smoking cessation, community pharmacists were trained in the use of specific behaviour change models applied to the use of nicotine replacement therapy in smoking cessation.

Evidence from RCTs in the US and Canada supports the wider provision of lipid management services through community pharmacies. The trials involved pharmacists in case finding, provision of specific advice on diet and exercise, referral for medication where needed, and regular consultation and interaction with clients.

A UK trial of supervised methadone administration in drug misuse achieved an attendance rate of 95.2% by clients and high levels of satisfaction with the service among providers and clients. An economic analysis of different methods of provision of needle-syringe exchange programmes in the US demonstrated pharmacy-based services to be the least costly.

The first UK schemes for community pharmacy supply of emergency hormonal contraception began in late 1999. A previous study conducted in the US showed that almost 12 000 supplies were made from 140 pharmacies over a 16-month period. Surveys of users of this service in the

US, and latterly in the UK, consistently show high levels of satisfaction.

Intervention studies from Sweden and the UK provide some evidence of benefit of pharmacist-provided patient education and monitoring activities in diabetes. Further research is warranted.

US research has evaluated the provision of immunisation services from community pharmacies. Patient use of these services increased rapidly after their introduction in 1998 and service user surveys show high levels of satisfaction with the service and its accessibility. A trial in the Netherlands demonstrated that use of pharmacy medication records (PMRs) to target 'at risk' clients and to invite them to attend their physician for vaccination against influenza resulted in 75.5% uptake.

The studies reviewed generally showed pharmacists to be positive about their potential contribution to health development, although the constraining effects of current working practices of pharmacists, existing remuneration arrangements and some community pharmacy premises are well-described. Training appears to be a key factor in changing community pharmacists' practice to incorporate health development activities and embedding a more holistic approach.

Research suggests that pharmacists are currently more likely to engage in health improvement activities that are linked to medicines use in some way. Furthermore, the literature indicates that, at present, pharmacists tend to take a reactive rather than proactive approach to health. There is some evidence that this may result from pharmacists' concerns that unsolicited advice about non medicine-related subjects may be rejected by users.

While surveys have shown that pharmacy users generally do not perceive the pharmacist as an adviser on general health issues, feedback following uptake of health improvement activities appears to be positive.

Discussion

The peer-reviewed literature from 1990 to 2001 demonstrates that pharmacists can make a positive contribution to health improvement. The generalisability of the findings of smaller studies is, however, limited. For most health topics the review revealed groups of small studies indicating positive impact.

The evidence from the reviewed literature is sufficiently comprehensive in the areas of smoking cessation, lipid management, emergency contraception and immunisation that recommendations for their widespread implementation in pharmacies can be made.

Other activities look promising – for example, diabetes and anti-coagulation monitoring and weight-reduction programmes, but would benefit from further research. Better quality research is also needed in other areas – for example, to test the effectiveness of pharmacy-based interventions, such as advice on folic acid or skin cancer prevention, on pharmacy users' subsequent attitudes and behaviour.

Public response to the role of pharmacists in health improvement appears, at times, to be contradictory. When asked in a theoretical way about whether they perceive the pharmacist to have a role in providing general health advice, the public's response tends to be cautious. However, when such advice and services are offered the uptake is generally good, suggesting that the public currently has low expectations of the community pharmacist.

Some members of the public are undoubtedly willing to take up the advice and services offered, and it appears that those currently most likely to do so are already regular pharmacy clients for prescribed medicines. This creates a paradox that while community pharmacies are visited by the healthy as well as the sick, the former group may be the most difficult to engage. Endorsement of pharmacists' involvement in health improvement by other stakeholders (including referrals to pharmacies),

and changes to remuneration arrangements could allow and encourage pharmacists to become more proactive in their approach to healthier users thus also increasing public awareness of advice and services available.

The reviewed evidence highlights the value of training to help pharmacists change their behaviour in order to deliver effective health improvement interventions.

Conclusions

The published literature clearly demonstrates the potential of pharmacists to contribute to improving the public's health.

The review identified a number of areas where further research is needed; for example, in diabetes monitoring and education. In particular the lack of strategic research is a weakness that needs to be addressed, for example, research on pharmacy's role in neighbourhood regeneration and renewal would complement this work but is not available. Funding also needs to be provided to address specific research questions in relation to pharmacy involvement with health improvement and any ensuing training needs.

There was relatively little published research into users' views of services being tested, and little evidence of user involvement in the development of the services themselves. Future research needs to have both greater user input into intervention and service design, and allow more feedback from users.

From the pharmacy profession's perspective, the development areas lie in encouraging greater proactivity through opportunistically offering advice and improving pharmacists' training in dealing with health improvement topics that are not directly related to medicines use. It will also be necessary to consider and address existing constraints of community pharmacy practice, remuneration arrangements, and premises where appropriate.

From other stakeholders' perspectives endorsing the use of pharmacies and thus extending the public's awareness of the pharmacist's role in giving health advice is key. Health commissioners and planners can use the findings of this review to incorporate community pharmacy-based health improvement activities into local health services.

1 INTRODUCTION

During the last decade there has been considerable interest and activity in research into the public health role of community pharmacies. In the UK a number of local initiatives have helped to shape thinking, for example the programmes developed in Barnet (Anderson 1998*b*), Somerset (Ghalamkari *et al* 1997*a,b*) and Glasgow (Coggans *et al* 2001). A recent European Commission project (2001) 'Health Promotion in Primary Care: General Practice and Community Pharmacy' was set up to develop a database of quality-assured European health promotion initiatives of Member States.¹

Despite an increasing number of initiatives and the growing published literature there were no recent reviews of the strength of the evidence for wider implementation of public health programmes in community pharmacies. For example, although the European initiative considered the quality of initiatives submitted and made recommendations for action, the project did not systematically review the quality of initiatives according to a set of evidence-based standards. In addition there was a broader need to clarify definitions used to describe public health activities in pharmacy, to identify which activities were most suited to a pharmacy setting and to determine which activities warranted further research investment.

To help address these issues the Royal Pharmaceutical Society of Great Britain and the charity PharmacyHealthLink commissioned a critical review of the UK and international literature relating to the contribution of community pharmacy to improving the public's health as part of a wider work programme to determine which activities are most likely to be effective in a pharmacy setting and how they might best be provided.

The first report reviews the findings of the peer-reviewed literature, which includes peer-reviewed journals and conference proceedings. The second report reviews the non peer-reviewed literature and examines aspects of

¹ See www.univie.ac.at/phc for more details on this initiative.

implementation in more detail. The final report summarises all the material reviewed and makes recommendations for action.

Aim of the review

The aim was to review, summarise and evaluate the evidence base of the literature from 1990 onwards relating to the contribution of community pharmacy to improving the public's health both in the UK and internationally.

Scope of the review

Definitions

The review includes activities defined under the following widely used definitions of health promotion and public health:

- **Health promotion**

The Ottawa Charter for Health Promotion (WHO, 1986)² states that '*Health promotion is the process of enabling people to increase control over, and to improve, their health*'.

- **Public health**

Public health has been defined as '*the science and art of preventing disease, prolonging life and promoting health through the organised efforts of society*' (Acheson inquiry into the future development of the public health function, 1988).³

Activities included/excluded

Specifically, the review included pharmacy activities for both individuals and wider communities relating to:

- Promoting health and well-being (e.g. nutrition, physical activity).
- Preventing illness (e.g. smoking cessation, immunisation, travel health).
- Identifying ill health (e.g. screening and case finding).

² WHO (1986). *Ottawa Charter for Health Promotion. First international conference on Health Promotion, Ottawa, 21 November 1986*. Geneva: World Health Organization.

³ *Public health in England: the report of the Committee of Inquiry into the future development of the public health function, Cm 289, 1988*. London: The Stationery Office.

- The maintenance of health for those with chronic or potentially long-term conditions (e.g. diabetes, asthma, hypertension).

The advice-giving role of the pharmacist in relation to the treatment of acute self-limiting conditions, the management of minor illness, prescribing and prescription reviews was not included because it has been adequately covered elsewhere.⁴

The literature review focused on activities taking place within the community pharmacy setting or activities carried out by community pharmacists and their staff in other settings, for example, in nursing homes. The work of pharmacists in primary care and strategic roles was included where relevant.

Criteria for inclusion of evidence

The majority of dissemination of research is based on a hierarchy of evidence with the randomised controlled trial (RCT) as the 'gold standard'. The literature in the field of pharmacy practice/public health contains few RCTs, and a substantial number of experimental studies and descriptive work. This review used two approaches to assess the quality of evidence: (1) the Health Development Agency's Evidence Base 2000⁵ for standards for transparency, systematicity and relevance; and (2) the categorisation of evidence according to the system used by the Department of Health in its National Service Frameworks (NSF).⁶

Health Development Agency standards: Evidence Base 2000

- *Transparency* – evidence must include a clear and transparent account of how it was collated, which sources of information have been consulted, who was involved in collating the evidence, how the work was funded, and a full disclosure of any analysis and findings.
- *Systematicity* – evidence identified must display clearly, regardless of the individual study, report or review

4 See, for example, The Public's Use of Community Pharmacies as a Primary Health Care Resource (1998) – research carried out by the University of Manchester School of Pharmacy and the National Primary Care Research and Development Centre for the Community Pharmacy Research Consortium.

5 See, for example, the Health Development Agency's website: www.HDA-online.org.uk/evidence/eb2000: Evidence base – quality standards for evidence.

6 See, for example, page 11 of the NSF on Services for Older People, Department of Health, March 2001.

methodology, the process through which the evidence was gathered and assessed.

- *Relevance* – evidence must be judged to be relevant to pharmacy practice/public health, and in this instance to the role of community pharmacy.

National Service Frameworks: categorisation of evidence

The Department of Health categorises individual studies according to the standard classification set out in its National Service Frameworks:

Evidence from research and other professional literature

- A1** Systematic reviews which include at least one randomised controlled trial (RCT) e.g. systematic reviews from Cochrane or NHS Centre for Reviews and Dissemination.
- A2** Other systematic and high quality reviews which synthesise references.
- B1** Individual RCTs.
- B2** Individual non-randomised, experimental/intervention studies.
- B3** Individual well-designed non-experimental studies, controlled statistically if appropriate. Includes studies using case control, longitudinal, cohort, matched pairs or cross-sectional random sample methodologies, and well-designed qualitative studies, well-designed analytical studies including secondary analysis.
- C1** Descriptive and other research or evaluation not in B (e.g. convenience samples).
- C2** Case studies and examples of good practice.
- D** Summary review articles and discussions of relevant literature and conference proceedings not otherwise classified.

2 METHODS

The electronic databases, searched from 1 January 1990 to 1 February 2001, were: MEDLINE; EMBASE; Cochrane Library; and International Pharmaceutical Abstracts. The brief for this study was to consider papers from 1990 onwards only, to capture the most recent evidence.

Hand searches for the same period were undertaken of the *Health Education Journal*, *International Journal of Pharmacy Practice*, *Journal of Social and Administrative Pharmacy*, *Pharmacy World and Science*, *Annals of Pharmacotherapy* (1992 onwards; previously *Drug Intelligence and Clinical Pharmacy* 1990–1991), *Pharmaceutical Journal*, *Scanner*, and abstracts of the British Pharmaceutical Conference and Health Services & Pharmacy Practice Research Conference.

All searches included non-English language literature. Those studies with English abstracts were assessed for inclusion on the basis of the abstract.

Search strategy and selection of evidence

Search strategy

Search terms for MEDLINE, EMBASE and International Pharmaceutical Abstracts were: pharmacists; community pharmacy; community pharmacy services; pharmacies; pharmaceutical services; health education; health promotion; public health; smoking cessation; diet; body weight; coronary heart disease (see Appendix 1).

The Cochrane Library was searched using a combination of the following terms: pharmacist; pharmacy; community pharmacy; health education; health promotion; smoking cessation; diet; body weight; coronary heart disease (see Appendix 2).

The lists of titles and abstracts of papers from the searches were examined separately by two of the authors (AB and CA) of this review. The inclusion/exclusion lists

were then compared and any differences resolved by discussion. Hard copies were obtained of all papers to be considered for inclusion.

Quality assessment

Two approaches were used. Firstly, the Health Development Agency's Evidence Base 2000 for standards for transparency, systematicity and relevance were applied to each paper. Secondly, each study was allocated an evidence grade according to those used by the Department of Health in the National Service Frameworks (see Appendix 3).

Abstraction of data

Data were abstracted and summarised under the headings: authors and study; study quality; country; study design and participants; interventions (including training); outcome measures; results; conclusions. A sub-sample of six papers was abstracted by each author and the findings compared to identify any differences and resolve them.

The summarised data in Appendix 4 was used as the basis for a qualitative synthesis of the findings and interpretation, taking into account the quality of evidence.

3 RESULTS

The searches generated 112 titles, 74 of which were considered to fall within the scope of the review and hard copies were obtained. The review covered 35 trials/experimental studies reported in 40 papers (18 UK; 14 US and Canada; 8 other Europe) and 34 descriptive studies (14 UK; 12 US and Canada; 8 other).

The results are presented by health topic, with a set of statements summarising the findings together with the grading of the evidence. Full details of all studies are provided in Appendix 4 with the page numbers on which they appear cross-referenced in the text.

Health topics

Smoking cessation

Two RCTs (Scotland, Northern Ireland) and three non-randomised experimental studies (Sweden, Germany, Switzerland) were reviewed. Abstinence rates in the RCTs were 14.3% intervention, 2.7% controls at one year ($P<0.001$) (B1: Maguire *et al* 2001, p53) and 12% intervention, 7% controls at nine months (B1: Sinclair *et al* 1998, p53). Intervention customers in the Scottish RCT were significantly more likely to report having discussed stopping smoking with pharmacy personnel (85% vs 62% controls; $P<0.01$). Self-reported abstinence was 33% at one year in the Swedish study but no validation method was used (B3: Isacson *et al* 1998, p55).

A health economic analysis of the Aberdeen trial showed that the cost of producing one successful attempt to quit smoking by using intensive rather than standard pharmaceutical support was £300 or £83 per life year saved (B1: Sinclair *et al* 1999, p53). In a health economic evaluation of a pilot study prior to the Northern Ireland trial the cost per life year saved through intervention ranged from £196.76 to £351.45 for men and £181.35 to £722 for women (B1: Crealey *et al* 1998, p54).

Main findings:

- Community pharmacists trained in behaviour change methods are effective in helping clients stop smoking (B1).
- Community pharmacy-based smoking cessation services are cost effective (B1).

Analysis / discussion point:

Crealey *et al* (1998), Sinclair *et al* (1998a, 1999), Isacson *et al* (1998), and Maguire *et al* (2001) demonstrate the effectiveness and cost-effectiveness of smoking cessation services provided by community pharmacists who have received training in behaviour change methods.

¹ See Appendix 3 for an explanation of the grades used to classify studies reviewed.

In a US survey of community pharmacists, 39.5% reported counselling people on smoking cessation at least once each week whereas only 7.5% reported routinely checking pharmacy clients' smoking status (B3: Williams *et al* 2000, p54). The authors conclude that although community pharmacists believe that they are qualified to provide smoking cessation services, they do not routinely identify smokers.

Studies in the UK (B1: Sinclair *et al* 1998, p53) and Switzerland (B3: Wick *et al* 2000, p55) investigated the effect of training on community pharmacists' smoking cessation advice. Intervention customers in the UK study were more likely to have had discussions with pharmacy staff about smoking cessation and to rate these discussions more highly than usual care customers. In the Swiss study, the intensity of counselling was predicted by prior participation in training.

Coronary heart disease

Lipid management

Two RCTs (USA, Canada), two observational studies (both USA) conducted in community pharmacies and one uncontrolled intervention study in a single community pharmacy (UK) were reviewed.

In the US RCT (B1: Nola *et al* 2000, p56) patients were identified from the pharmacy's computerised patient medication records and invited to attend a screening day at the pharmacy, where a nurse took blood samples which were tested off-site. The pharmacist advised on diet, exercise and treatment. At the end of the study (6 months) 32% of the intervention group and 15% of the control group patients achieved target lipid levels. Risk factor scores improved in the intervention but not the control group.

The Canadian RCT tested the efficacy of community pharmacist intervention on cholesterol risk management in high risk coronary heart disease patients (B1: Tsuyuki *et al* 1999, 2000, p56; B1: Simpson *et al* 2001, p57)

Analysis / discussion points:

Williams *et al* (2000) suggest that pharmacists are more likely to respond to smokers' requests for advice than to initiate conversations about smoking.

Sinclair *et al* (1989b) and Wick *et al* (2000) underline the role of training in enabling community pharmacists to provide effective smoking cessation services.

Main findings:

- Lipid management services provided by community pharmacists are effective in helping clients to achieve target lipid levels (B1).
- Lipid management services provided by community pharmacists are effective in enhancing the prescribing and use of lipid-regulating medications (B1).
- Lipid management services provided by community pharmacists are effective in reducing clients' coronary heart disease risk scores (B1).
- Information routinely kept by community pharmacies on dispensed medication enables case-finding of patients for interventions in lipid management (C1).

involving 44 community pharmacies. Patients included were those at high risk of vascular events (those with atherosclerotic valvular disease, or diabetes with another risk factor). The primary endpoint was a composite measure of a complete fasting cholesterol profile, or addition of cholesterol-lowering medication or modification of previous cholesterol medication. Secondary outcomes were patient satisfaction and quality of life. Pharmacists undertook training and participated in investigator meetings. Patients involved in the intervention were interviewed by the pharmacist, who also conducted a cholesterol test, provided information and education on risk factors and made recommendations to the physician on medication changes. The external data committee recommended early study termination due to benefit, the primary endpoint being reached in 58% of intervention patients compared to 30% in usual care ($P=0.001$).

In a before and after study in the US patients' total lipid and LDL (low-density lipoprotein) levels were significantly decreased at 12 months compared with baseline of 6 months ($P<0.02$) (B3: Shibley & Pugh 1997, p57). Target lipid levels were achieved by 62.5% of patients in a two-year US study conducted in 26 community pharmacies (B3: Bluml *et al* 2000, p58). Observed rates for persistence and compliance (assessed through number of missed doses and timing of prescription refill requests)² with treatment were 93.6% and 90.1% in the same study.

In the UK uncontrolled intervention study in a single community pharmacy, patient follow-up of total blood cholesterol measurement was made after each of three visits to the pharmacy (B3: Ibrahim *et al* 1990, p58). Of 241 people screened, 51 had elevated total blood cholesterol and completed the study. There was a significant decrease in total blood cholesterol between the first and second pharmacy visits but not between the second and third visits. In a US uncontrolled study with patient follow-up of self-reported lifestyle behaviour change of 539 participants, 78% were found to have

Analysis / discussion point:

The RCTs (Tsuyuki *et al* 1999, 2000; Nola *et al* 2000; Simpson *et al* 2001) provide convincing evidence, supported by the other studies (Ibrahim *et al* 1990; Madejski & Madejski 1996; Shibley & Pugh 1997; Bluml *et al* 2000), that community pharmacists have an important role to play in managing lipid levels. Community pharmacies offer the potential to improve the use of the resources invested in and the outcomes of lipid management. Piloting of programmes should commence as soon as possible in the UK.

² Measurement of the extent to which patients take treatment as intended is complex. Two techniques commonly used are the number of doses missed and whether the patient collects further supplies of the medicine such that continuous dosing can occur. The latter ('Mistimed Refills') can be used by the pharmacist to monitor patterns and initiate a discussion with the patient where needed.

elevated cholesterol levels and 85% of these were followed up. Lifestyle modifications were reported by 85% of patients and 23% accepted an offer of re-testing (B3: Madejski & Madejski 1996, p58).

Identifying pharmacy users with risk factors for coronary heart disease

A distinction is made in this section between the terms 'screening' and 'case finding' in a pharmacy setting. The terms used are based on the definitions adopted by the UK National Screening Committee:³

- *Screening* – is a health service in which members of a defined population, who do not necessarily perceive they are at risk of a disease or its complications, are asked a question or offered a test, to identify those individuals who are more likely to be helped than harmed by further tests or treatment.
- *Screening procedure* – a systematic procedure to select individuals from a given population at risk for an impairment.
- *Case-finding* – actively trying to diagnose individuals for cascade screening (systematic identification and testing of members in a family).

The published literature in this review uses the term 'screening' to describe the disease detection services that are, or might be, provided from community pharmacies. In practice most community pharmacy-based services are 'case-finding' where targeted groups identified from an analysis of patient medication records are invited to attend for testing.

Case-finding

In addition to the US RCT (B1: Nola *et al* 2000, p56) patient medication records in four Canadian community pharmacies were searched for a range of drugs that would indicate heart disease, hypertension, diabetes or smoking (B3: Gardner *et al* 1995, p59). The 426 patients

Main findings:

- Using pharmacy medication records to identify clients at 'high risk' of coronary heart disease is an effective method of identifying those most at risk and instigating health promotion measures (B1).

³ See UK National Screening Committee Glossary: www.doh.gov.uk/nsc/glossary/glossary_main.htm

were then invited to attend the pharmacy for a cholesterol test, of whom 88 did so. An additional 97 'walk-in' patients were also tested. Cholesterol levels were significantly higher in the targeted group.

Dispensing data from 138 community pharmacies in Sydney, Australia was used to identify patients who had apparently discontinued treatment with lipid lowering drugs (B3: Simons *et al* 1996, p59). The main reasons given for why patients had stopped their treatment were: being unconvinced of the need for treatment (32%); poor efficacy⁴ (32%), and adverse effects (7%). Half of the apparent discontinuations occurred within three months of starting treatment.

Screening

In a city-wide survey of community pharmacies in the UK, 12% were offering testing services other than pregnancy testing and 48% indicated that they might offer tests in the future (B3: Allison *et al* 1994, p59). Owner-proprietors were more likely to be providers of 'screening' services. Allison *et al* (1994) concluded that community pharmacy-based screening was unlikely to be commercially viable unless local doctors contracted for such services.

A survey of community pharmacies in South Africa investigated the provision of 'screening' services and their operation (B3: Flobbe *et al* 1999, p60). Overall, 57% of pharmacies provided at least one screening test, with blood pressure measurement, serum cholesterol, capillary glucose and pregnancy testing being the most common. Blood pressure measurement was the most frequently conducted test. Only 35% of pharmacists kept records of test results. No pharmacists reported using quality control procedures for their screening service, and pharmacists' knowledge about the tests was found to be poor. These findings indicated areas where improvement was needed. In addition, the authors comment that population coverage was insufficient for pharmacists to play a meaningful role in screening for disease.

Analysis / discussion point:

The use of pharmacy medication records and dispensing data to target patients with risk factors for coronary heart disease appears to be effective in identifying those at risk to provide follow-up on lipid management and advice (see also 'Lipid management').

Main findings:

- There is insufficient evidence to determine whether 'screening' activities, for example blood pressure measurement, carried out in community pharmacies is an effective use of resources (B3).

4 How patients interpreted or evaluated efficacy is not clear.

In an evaluation of US cholesterol testing using the community pharmacy premises as one of the locations, community pharmacists were asked about their experiences with the screening programme (B3: Jungnickel & Wisehart 1997, p60). The results showed little engagement of pharmacists in the programme, indicating that simply locating the service in the pharmacy setting did not result in increased pharmacist involvement. Few pharmacists were aware of the process for identifying high risk patients and in only 10% of cases had the pharmacist received a list of patients who had been recommended to contact their doctor.

In a study involving a single community pharmacy in a UK inner city, free blood pressure checks were offered for six weeks to people aged 30–64 years, with the pharmacist inviting individuals to take part (B3: Hampton *et al* 1990, p60). The client was given a copy of his or her blood pressure reading to take to the doctor. Of 120 people approached, 70 (58%) agreed. The GP records of 40 patients were checked for the inclusion of the pharmacy blood pressure reading, 10 cases were found. GP response to the scheme, explored at interview was 'not enthusiastic'. The authors concluded that pharmacist measurement of blood pressure and referral to a GP was unlikely to be accepted unless part of a co-ordinated programme.

Secondary prevention with aspirin

Two audits of aspirin purchases in UK community pharmacies in 1996 and 1998 showed that 33% and 27% of patients respectively appeared to be taking prophylactic aspirin without their GP's knowledge (B3: Horne 1998, p61). The mean purchase rates were approximately two patients per pharmacy per week in the first audit and 2.5 in the second. Interviews with 128 patients purchasing low dose aspirin or receiving it on prescription were used to identify information needs (B3: Black *et al* 1998, p61). Community pharmacists were seen as a highly acceptable source of information but there was some concern about the level of privacy achievable in a community pharmacy, with just over half believing that the pharmacy was a suitable venue for such information.

Analysis / discussion point:

It is unclear whether pharmacies can play an effective part in population screening for coronary heart disease without further research and training.

Main findings:

- Community pharmacy audits can identify self-initiated aspirin treatment and encourage referral for medical advice (B3).
- Community pharmacy-based monitoring of the use of prophylactic aspirin treatment shows promise but more evidence is needed (B3).

Analysis / discussion point:

Black *et al* (1998) and Horne (1998) indicate that community pharmacies could perform an important role in ensuring the appropriate use of prophylactic aspirin treatment and intervening to minimise potential harm from self-initiated aspirin treatment in people with contra-indications to its use. Further research in collaboration with local prescribers is needed to test feasibility and outcomes of such a programme.

Anticoagulation

Three community pharmacies in the US, with existing 'health education centre' and laboratory facilities, provided an anticoagulation education and monitoring programme for patients referred by two primary care physicians (B3: Knowlton *et al* 1999, p62). In addition to measuring international normalised ratio (INR)⁵ the pharmacists conducted regular patient assessment covering adherence, medication use and diet. Of 26 patients referred to the service, data were available for 21 of them. Most patients' INR values were within the targeted range for over 60% of the study period.

Obesity and weight reduction

One study in Denmark reported the results of 'slimming courses' held at 19 community pharmacies for 269 obese clients (B3: Tubro 1999, p62). Average weight loss (self-reported by clients measured on scales in the pharmacy) was 5.3 kg for females and 6.2 kg for males. At one-year follow-up, 20% of clients who completed the course had maintained a weight loss of 5 kg or more.

Skin cancer prevention

A North American RCT was reviewed that tested the effect of training, prompts and feedback on community pharmacists' unprompted counselling rates on skin cancer prevention (B1: Mayer *et al* 1998, p62). Intervention-group pharmacists scored higher on knowledge, and 'mystery shopper' visits showed some evidence of increased counselling rates on skin cancer prevention among intervention pharmacists.

In Sweden a kiosk with a touchscreen education public programme was installed in one community pharmacy and in one library, and usage was monitored (C1: Lindholm *et al* 1998, p63). Usage was higher in the pharmacy than in the library setting. Of the 274 users of the programme, 29% (mainly young women) reported they would change their sun exposure behaviour.

⁵ Patients taking anticoagulants are monitored using a blood test to ensure that the level of anticoagulation is safe. Each patient is given a target INR range and if the test result is outside that range, the dose of anticoagulant is increased or decreased. Testing of INR has generally been done in hospital clinics, but local community-based testing is more convenient for patients.

Main findings:

- Community pharmacy-based monitoring of anticoagulant therapy shows promise but more evidence is needed (B3).

Analysis / discussion point:

Further research into community pharmacy-based monitoring of anticoagulant therapy is urgently required to identify the potential for minimising negative health outcomes for this 'high risk' patient group.

Main findings:

- Community pharmacy-based weight reduction programmes appear to show promise but further evidence is needed (B3).

Analysis / discussion point:

Further research is required to determine the potential for an alternative effective community-based programme for weight reduction based in community pharmacies.

Main findings:

- Training in skin cancer prevention enhanced knowledge and increased the opportunistic offering of advice to clients by pharmacists (B1).

Analysis / discussion point:

Pharmacy-based information on skin cancer prevention appears to be effective in raising awareness of 'sun risks' and trained pharmacists are more likely to be proactive in counselling clients. However, the effects of this advice on behaviour are unknown.

A community pharmacy-based skin cancer awareness campaign in Canada tested pharmacists' knowledge before and after the scheme (B3: Leinweber *et al* 1995, p63). Pharmacists' knowledge about skin cancer was high at baseline, with some improvement at follow up. Pharmacists were positive about participation in the scheme. However, no data were available on client uptake or client-related outcomes.

Drug misuse

One UK study reported on the findings of a pilot for supervised administration of methadone in community pharmacies (B3: Luger *et al* 2000, p63). Seventeen community pharmacists supervised a mean of five methadone consumptions per week. The service was acceptable to clients, with 68% rating it 'reasonable'. One in three pharmacists reported difficulty in coping with this client group.

A survey of community pharmacist providers of pharmacy-based needle exchange (PBNX) and local needle exchange co-ordinators in the UK aimed to characterise the service (B3: Sheridan *et al* 2000, p64). The mean number of transactions per pharmacy per month was 49 and pharmacies had a mean of 17 clients (range 0–350). The return rate for injecting equipment was 30%. Two-thirds of PBNX pharmacies also reported dispensing oral methadone. Pharmacists reported further training needs for themselves and their staff.

An economic analysis was undertaken in the US of the relative cost in preventing HIV in different needle/syringe provision programmes including PBNX (B3: Lurie *et al* 1998, p64). The estimated cost per syringe distributed was found to be 37 cents US (approximately £0.24) through PBNX compared with 97 cents (approximately £0.63) through a standard needle exchange programme.

A national UK survey of community pharmacists found that between 1988 and 1995 the percentage of pharmacies providing needle exchange services increased from 3.0% to 18.9% and that sales of injecting

Main findings:

- Community pharmacy-based supervised methadone administration services can achieve high attendance rates and be acceptable to clients (B3).
- PBNX schemes are cost-effective (B3).
- Specific training needs have been identified for pharmacists participating in PBNX schemes (C1).

equipment were being made by 34.5% compared with 28.0% in 1988 (B3: Sheridan *et al* 1996, p64).

A US study of pharmacists' attitudes towards needle/syringe exchange and sales of injecting equipment found that while pharmacists stated support for access to sterile injecting equipment, there was diversity in their approaches to its sale (B3: Gleghorn *et al* 1998, p65). One in three pharmacists would only sell injecting equipment to identified diabetic patients, and 54% stated that they routinely asked for picture ID before agreeing to make a sale. There are no similar studies of UK pharmacists' approaches to selling injecting equipment.

Analysis of queries received by a pharmacist during sessions at a needle/syringe exchange service in a drug counselling centre in the UK was used to identify training needs (C1: Scott *et al* 1998, p65). Key areas of new knowledge identified were: harm reduction strategies and drug use-related health problems. Being able to respond to drug users' terminology was also found to be a key need.

A survey of community pharmacists in the UK identified the following as predicting pharmacist provision of services: male gender; more recently registered; positive attitudes towards drug misusers (B3: Matheson *et al* 1999, p65). Research has also identified geographical variation in the provision of methadone supervision services (B3: Matheson *et al* 1999, p66). Attitude was found to be an independent predictor of participation in needle/syringe sales, methadone dispensing and supervised methadone administration (B3: Matheson *et al* 1999, p66).

Emergency hormonal contraception

Community pharmacists worked with local prescribers to produce Collaborative Drug Therapy Agreements (CDTAs)⁶ to enable the pharmacist to supply emergency hormonal contraception (EHC) in a pilot project involving 140 pharmacies in Washington state (B3: Hayes *et al*

⁶ CDTA is a local agreement between pharmacists and physicians in the US to allow the supply of certain medicines by pharmacists.

Analysis / discussion point:

The majority of studies show increasing interest and commitment by community pharmacists towards the provision of services for drug misusers. The services evaluated in the published literature have been shown to be cost-effective and acceptable to users. Training in the needs of this target group is necessary to ensure services are safe and appropriate for both users and staff.

Main findings:

- Emergency contraception can be effectively and appropriately supplied by pharmacists (B3).
- Users were generally satisfied with the service pharmacists provided (C1).
- Pharmacists were positive about their experience of providing emergency hormonal contraception (B3).

2000, p66). There were 145 CDTAs created and 11 969 supplies of EHC made over 16 months. Training was undertaken by 1000 pharmacists for the scheme.

A questionnaire survey of providers and users of the Washington EHC scheme was made (C1: Sommers *et al* 2001, p67). Pharmacists were highly rated by users for their personal interactions and for the quality of information supplied about EHC use. Ratings were lower for information about side effects, recognition and follow-up of EHC failure, and for information on regular contraceptive methods. Most of the pharmacists and prescribers (92%) were 'satisfied' or 'very satisfied' with the prescribing arrangements.

From late 1999, EHC (at that time a prescription only medicine) was made available through community pharmacies in a small number of areas of the UK using 'Patient Group Directions' (PGDs).⁷ Evaluation was undertaken involving interviews with 44 provider pharmacists from two areas (B3: Bissell *et al* 2001, p67). Pharmacists were positive about their experiences of supplying EHC although some expressed concerns about the potential for repeated use being encouraged by widening access to the treatment. Pharmacists believed that the cost of EHC as an over the counter medicine was likely to deter its use by women on lower incomes. Bissell *et al* (2001) concluded that pharmacy supply of EHC appeared to be a novel and beneficial method of extending access within the timescale required for effective treatment.

A study of the effect of using pharmacy window displays was conducted in 20 community pharmacies in one area of the UK to raise awareness of emergency contraception (B3: Sharma & Anderson 1998, p67). Enquiries about EHC increased two- to fourfold and leaflet uptake between three- and 43-fold. Prescriptions for EHC rose threefold and pregnancy tests fourfold.

A review of the UK literature (C1: Anderson 2000, p68) described health development initiatives introduced by

- Pharmacy window displays are effective in raising client awareness, enquiries about supply and the presentation of prescriptions for emergency contraception and pregnancy tests (B3).

Analysis / discussion point:

Utilising community pharmacies to widen timely access to EHC has resulted in a service with high levels of user satisfaction. Window displays are effective in raising awareness, and use, of pharmacies for supplying emergency contraception.

⁷ PGD provides authorisation for the supply of a medicine to patients other than on a prescription according to specified inclusion and exclusion criteria.

individual pharmacists, pharmacy multiples, and NHS organisations. Use of the pharmacy premises (e.g. window displays) increased both uptake of leaflets about, and presentation of prescriptions for, EHC.

Community pharmacies in deprived areas in the US, were identified as key access points in a discussion paper on potential roles for pharmacists in the prevention and control of sexually transmitted diseases (D: Stergachis 1999, p68).

Folic acid and pregnancy

A community pharmacy-based campaign was undertaken in one area of the UK to promote the uptake of folic acid in planned pregnancy (B3: Rajyaguru & Anderson 1999, p68). Pharmacists and their staff took part in an evening training session and were supplied with publicity materials including leaflets, posters, and window display items. Most pharmacists and assistants reported feeling comfortable about advising on this topic, and the evaluation showed they felt most comfortable advising regular customers.

A postal questionnaire study examined the knowledge, behaviour, and attitudes of Dutch community pharmacists in relation to folic acid use by women of childbearing age (B3: De Jong-Van den Berg *et al* 1999, p69). Overall, 30% of respondents reported that they were using an additional label about folic acid on oral contraceptives. The two-thirds who were not using the label said this was because of concerns about 'imposing' this information on women. Pharmacists' perceptions of the attitudes of local GPs appeared to influence their willingness to proactively promote folic acid use. Compared with the findings of a similar survey two years earlier, De Jong-Van den Berg *et al* (1999) state that more pharmacists appeared to be promoting folic acid use.

Asthma

One UK study reported the effects of a controlled trial of educational intervention by pharmacists on primary school teachers' knowledge of asthma (B2: Bell *et al* 2000a, p69). Pre-study knowledge scores were similar for the intervention

Main findings:

- Pharmacy staff appear positive about promoting the role of folic acid in pregnancy but there is no published evidence of the effects of intervention on behaviour (B3).

Analysis / discussion point:

Further investigation is needed to assess the impact of pharmacy-based interventions on folic acid use by women.

Main findings

- An educational intervention by pharmacists enhances asthma knowledge of primary school teachers (B2).

and control groups whereas post study scores were significantly higher in the intervention-group teachers.⁸

Diabetes

In Sweden the effects of a one-year pharmacy-based group education model for people with diabetes was investigated (B3: Sarkadi & Rosenqvist 1999, p70). Thirty-nine patients in eight study groups who had participated in the programme for five months or longer were included in the evaluation. Metabolic control, as indicated by HBA1c,⁹ was significantly improved at six but not 12 months. More than half of the participants reported that their perception of diabetes and its treatment had changed as a result of the programme.

A Dutch consensus group study of community pharmacists and pharmacy technicians was undertaken to identify priorities for community pharmacists' educational activities targeted at people with diabetes (B3: Timmer *et al* 1999, p70). The study found that priority should be given to adherence with treatment, increasing awareness of side effects and improving glucose monitoring through correct use of meters. A lower priority was given by the pharmacists and technicians to activities directed at lifestyle changes.

In a community pharmacy-based UK study, patients were allocated to 'quality control' (QC) and 'no quality control' (NQC) groups with HBA1c levels as the outcome measure (B2: Dixon *et al* 2000, p70). All patients were given written information about diabetes, a new set of instructions for their glucose meter, and a diary to record their results. Patients in the QC group also received written information about QC. Patients in this group showed smaller increases in HBA1c.

Immunisation

In an experimental study in the US, 19 supermarket pharmacies provided an immunisation service and also administered vaccines at off-site locations (B3: Weitzel &

⁸ Most research detailing the involvement of pharmacists in the management of asthma fell outside the scope of this literature review.

⁹ HBA1c is measured in a blood test and is the standard method of assessing how well blood glucose levels are being controlled in diabetes.

Analysis / discussion point:

Further research is required into whether pharmacist-led training programmes can lead to improved management of asthma in schoolchildren by teachers.

Main findings:

- Pharmacy-based group education for people with diabetes shows promise but more evidence is needed (B3).
- Community pharmacy-based monitoring and information-giving in diabetes shows promise in improving diabetic control but further research is needed (B2).

Analysis / discussion point:

Further research is needed into the effectiveness of pharmacy-based programmes to improve the management of diabetes.

Main findings:

- Immunisation services can be safely provided through community pharmacies (B3).
- User satisfaction with pharmacy-based immunisation services is high (C1).

Goode 2000, p71). The pharmacy service was offered through clinics and walk-in centres from 1998 onwards. In the first year, 5137 influenza and 613 pneumococcal vaccinations were provided, increasing to 18000 and 1200 in the next year. There were few adverse reaction reports and no serious allergic reactions.

A survey of users of pharmacy-based immunisation services was conducted in the US (C1: Grabenstein 2001, p71). Many respondents stated a preference for pharmacy immunisation based on access, convenience, trust, and cost. Most users reported being satisfied with the service received and said they would recommend it to others. Patients' acceptance of pharmacy-based immunisation was investigated using a postal questionnaire distributed through physician and pharmacy outlets (C1: Ernst *et al* 2001, p71). Younger patients and those in small towns were more likely to report receiving immunisation from a non-physician. There was greater support for non-physician immunisation for adults than for children.

In a US review of the role of pharmacists as an advocate for immunisation, 50–94% of people who receive a pharmacist's recommendation to be immunised accepted the recommendation (D: Grabenstein 1998, p72). The author reports that pharmacists were authorised to administer vaccines in 25 states and that over 5 million doses of influenza vaccine per year were administered in pharmacies. More than 1000 pharmacists received training in vaccine administration in 1997 in the US.

A national US survey of pharmacists found that 2.2% and 0.9% of respondents reported being involved in adult and paediatric immunisations respectively (B3: Madhavan 2001, p72). However, the low response rate (25.3% after three mailings) makes the robustness of the findings questionable. The study also explored perceived barriers to pharmacists' future involvement and these findings might be used in educational and promotional programmes to extend pharmacist provision of immunisation.

In the Netherlands, 27 community pharmacists worked with 42 local family doctors to promote vaccination (B3:

- Support for non-physician immunisation is greater for adult than for child immunisation (C1).
- Pharmacy patient medication records can be used for case-finding of 'at risk' clients to be invited for immunisation and can increase the percentage of the target group immunised (B3).

Analysis / discussion point:

While there has been no community pharmacy-based provision of immunisation services in the UK to date, the data from the US show that such services can be safely provided by community pharmacists and that they increase convenience for the public. The potential to use pharmacy-based patient medication records to target people for influenza immunisation is considerable and should be piloted in the UK.

Davidse & Perenboom 1995, p72). Medication data from the pharmacists' computerised patient medication records were used to create a list of 'at risk' patients. The doctors used the lists to select patients to be invited for the influenza vaccination. Coverage of vaccination increased by over 50% to 75.5% in the intervention group, compared with an increase of 18% for a group of comparable non-participating family doctors.

Head lice

A study of community pharmacists' self-reported behaviours in advising about head lice was conducted in the UK (B3: Adie & Anderson 1998, p72). Half of the 34 pharmacists interviewed said they had checked hair in the pharmacy, mainly when asked, and a further 12 said they would do so if asked. Half of the pharmacists said they followed local policy on which product to recommend, with locum pharmacists being less likely to be aware of current local policy. Pharmacists' recommendations about product use and the need for repeat applications were variable.

Oral health

Two studies were reviewed that explored pharmacists' perceptions of their role in oral health. In a survey of pharmacists in Greater Belfast, 25% reported receiving formal education on oral health (B3: McVeigh & Kinirons 1999, p73). A South African survey found that community pharmacists received substantial numbers of customer inquiries on a range of oral health topics (B3: Gilbert 1998, p73). While pharmacists were positive about this role few had received education on oral health and there was little evidence of networking with other health professionals.

A campaign to increase the proportion of sugar-free medicines prescribed, dispensed and sold for paediatric use was conducted in two test and two control areas of the UK (B2: Maguire *et al* 1999, p73). Information was provided to GPs and community pharmacists and quantities of sugar-free medicines dispensed and sold were tracked. There was a substantial increase in sugar-free medicines prescribed and dispensed but only a small increase in sugar-free medicines sold over the counter.

Analysis / discussion point:

Members of the public see pharmacists as an approachable source of advice and treatment for head lice. The provision of this service, however, appears unstructured and requires further assessment of its effectiveness.

Main findings:

- Pharmacists are asked by their customers to give advice on oral health but training received on this topic is variable and evidence of the effectiveness of their interventions is lacking (B3).

Analysis / discussion point:

Members of the public view pharmacists as an acceptable source of advice on oral health, but pharmacists' contribution appears to be limited by their training.

Nutrition and physical activity

The literature search identified no individual studies on these topics, although they were covered in some multi-topic community pharmacy programmes, and were part of some studies on heart disease prevention.

Multi-topic health promotion programmes

A city-wide community pharmacy health promotion programme was established in Glasgow (C1: Coggans *et al* 2001, p74). Five facilitators were appointed to provide support for the pharmacists and a resource manual and training were provided. Pre- and post-programme surveys were conducted with 410 customers in 32 pharmacies. The results showed an increase in the percentage of customers who reported gaining useful health information from interactions with pharmacists or assistants or from health leaflets. More customers reported discussions about general health when collecting prescription medicines or purchasing over the counter medicines, indicating that the programme changed pharmacists' behaviour in two important ways. Firstly, pharmacists became more proactive in initiating health discussions and, secondly, they introduced general health topics.

In the UK, 10 community pharmacies participated in a health authority based health promotion scheme (B3: Blenkinsopp *et al* 2000, p74). Pharmacists provided advice based on the transtheoretical model¹⁰ with brief (Level 1) and extended (Level 2, 20 minutes) interventions. Health topics covered were: oral health; physical activity; smoking cessation; and use of medicines. Intervention numbers were lower than expected, with the exception of smoking cessation. User feedback showed that prior perception of pharmacists' involvement in health advice was low but that the pharmacist's input was invariably received positively. The feasibility of providing Level 2 interventions in the pharmacy setting was questioned. Although the intention was for pharmacists to use their

Main findings:

- Support from facilitators was associated with pharmacy-based health development activities with high public uptake (C1).
- User feedback from pharmacy-based health development activities is generally very positive (B3).
- Users' awareness of community pharmacies as a source of general health advice is low (B3).
- Training increases the length of consultation between pharmacist and clients on health issues (B2).

¹⁰ The transtheoretical model was developed and trialled by Prochaska and DiClemente in the 1980s. It has been commonly referred to as the 'stages of change' model, although this reflects only one of its three key components.

patient medication records to target individuals for advice, this rarely occurred.

In a scheme in one area of the UK, 14 community pharmacies were randomly allocated to test (training) and control groups (B2: Ghalamkari *et al* 1997a, p74,b, p76). A further control group was also included. Pharmacists were asked to record, for eight months, their health promotion consultations on: smoking cessation; pregnancy; sun and skin protection; blood pressure monitoring; peak flow measurement; and infestations. The test group pharmacists recorded a higher number of consultations, although the difference between test and controls was not significant. Pharmacists in the test group recorded higher numbers of longer consultations (six minutes or more) and the control pharmacists higher numbers of brief consultations (one minute or less).

The nature and frequency of the involvement of community pharmacists in health promotion was studied in 20 community pharmacies in one area of the UK (B3: Thompson *et al* 1995, p75). Pharmacists reported a mean of 124 consultations on health promotion topics (range 46–328). Smoking cessation was the most frequently reported topic (23% of consultations), followed by healthy eating (7%) pregnancy testing (7%), and oral health (6%). Health promotion advice was associated with the sale of a medicine or other product in only 20% of consultations.

Factors affecting the effectiveness of community pharmacy-based activities to improve health

Facilitators

The literature review identified two programmes that explicitly mentioned the use of facilitators in a pharmacy-based health promotion programme (C1: Coggans *et al* 2001, p74). In this Glasgow-based programme, five community pharmacists were appointed on a part-time basis as facilitators and each were responsible for a locally-defined group of 40–45 pharmacies, linked to a

Analysis / discussion point:

Pharmacists are willing to participate in large-scale health promotion programmes and training positively increases their level of involvement. User feedback from programmes of this kind is positive and most report gaining useful health information, although their expectations of the service are initially low. There is no evidence available yet linking increased interaction with pharmacy staff to changes in user behaviour or health outcomes.

Main findings:

Support from facilitators increases the number of health improvement consultations made by community pharmacists (B3).

hospital pharmacy practice base. A year after the programme began, one of the facilitators was appointed to a post at the local health promotion department, with a remit that included the development of community pharmacy-based health promotion. This person was subsequently able to provide a direct and continuous link between the facilitator network, the local pharmacists, and the health promotion department.

In a multi-topic health promotion programme the appointment of a pharmacist facilitator during the scheme resulted in increased interventions by the participating community pharmacists (B3: Blenkinsopp *et al* 2000, p74).

Training

Four studies investigated the effect of training (B2: Anderson 1995, p75; B3: Anderson & Alexander 1997, p76; B2: Ghalamkari *et al* 1997a, p74, B3: 1997b, p76; B1: Sinclair *et al* 1998, p53). All concluded that training was a key component in changing pharmacists' behaviour during specific health promotion programmes. Advice from pharmacists trained in smoking cessation advice techniques produced significantly higher quit rates among smokers than pharmacists without training (B1: Sinclair *et al* 1998, p53). Training resulted in longer consultations between pharmacists and clients (B2: Anderson 1995, p75; B3: Ghalamkari *et al* 1997b, p76) and increased opportunistic health promotion involvement (B3: Ghalamkari 1997b, p76; B3: Coggans *et al* 2001, p74). Training was positively received by pharmacists in all studies reviewed. The involvement of other health professionals in future training programmes was recommended (B3: Anderson & Alexander 1997, p76). A review of UK literature suggested that training on health promotion for pharmacists may lead to a more holistic view of health (C1: Anderson 2000, p68).

Evidence that training in health promotion changes pharmacists' behaviour is provided by the findings of two studies (B2: Anderson 1995, p75; C1: Coggans *et al* 2001, p74). Anderson (1995), a covert research study, used a 'simulated patient' who presented at a random sample of both community pharmacies where the pharmacist had received training and an equal number of control

Main findings:

- Training in smoking cessation techniques increases pharmacists' effectiveness in achieving higher quit rates (B1).
- Training changes pharmacists' behaviour during specific health promotion programmes (B2).
- Training in health improvement increases the time that community pharmacists spend in consultation with pharmacy users and also increases user satisfaction and opportunistic health promotion advice (B3).

pharmacies where no training had been received. The 'simulated patient' was blind to the status of the pharmacies visited. Pharmacists who had participated in training not only spent longer with the client and asked more questions, but the client felt more able to ask questions during the consultation and was more satisfied with these consultations. Coggans *et al* (2001) found that, clients of pharmacists who had participated in training reported that the pharmacist initiated more discussions on general health matters rather than solely on medicines.

Stakeholder views

Pharmacy users

Of those clients who had consulted with community pharmacists in a local health promotion scheme in the UK, 105 (72%) responded to a follow-up survey four weeks later (B3: Ghalamkari *et al* 1997b, p76). Nearly 70% reported that they had followed the advice they had received and only 4% reported that they had not followed any aspect of the pharmacist's advice.

A survey completed by 430 users of community pharmacy schemes supplying EHC in the UK found that 91% felt 'comfortable' or 'very comfortable' about discussing emergency contraception with the pharmacist (B3: Anderson *et al* 2001, p68). This study explicitly addressed users' perceptions of privacy in the pharmacy and found that 86% said there was sufficient privacy to talk to the pharmacist comfortably. A further 90% were 'satisfied' or 'very satisfied' with the manner in which their request for emergency contraception was dealt with. A minority (16%) indicated that they were 'concerned' or 'very concerned' that information about their request for emergency contraception would not be kept confidential by the pharmacy. Overall these findings demonstrate a high level of user satisfaction. Although concerns about confidentiality were only expressed by a minority of users, this finding suggests that it would be useful to provide more information to the public about pharmacists' professional responsibilities regarding confidentiality of patient information.

Analysis / discussion point:

Both training and the use of facilitators increase the effectiveness and participation of pharmacists in health improvement.

Main findings:

- Pharmacy users report having followed the health advice given by pharmacists with positive views on the pharmacist's input (B3).
- Most pharmacy users perceive there is sufficient privacy in the pharmacy to discuss even sensitive subjects (B3).
- Awareness of pharmacy-based leaflets on health topics is higher for those clients taking prescribed medicines (B3).

A survey of the views of 'established' users of four community pharmacies in Ireland on the pharmacist's role in health education and promotion was completed by 112 (72%) respondents (B3: Hamilton 1998, p77). The majority considered that the pharmacist was qualified to discuss health matters, with 12% disagreeing. The pharmacist was seen as the first source of health information by 18% of respondents.

An interview-based survey of 1000 members of the public in Northern Ireland (B3: Bell *et al* 2000*b*, p77) examined the attitudes towards current and future roles of community pharmacists in health promotion and health screening. Support for both health promotion and 'screening' activities was highest in those aged under 60 years. Just over half the respondents said they would be willing to pay for cholesterol testing and blood pressure measurement in the pharmacy, with older patients more likely to do so. Around 40% said they would be willing to make an appointment with their pharmacist for health promotion or screening.

In a major UK study involving interviews with 592 community pharmacy users, 77% preferred their GP as a source of advice for 'staying healthy' and 8% the pharmacist (C1: Anderson 1998*a*, p77; B3: 1998*b*, p78). Overall, 40% agreed it was the pharmacist's 'usual job' to advise on staying healthy (prescription users being most likely to agree), 19% disagreed, and 41% said they did not know. Over 90% had noticed health topic leaflets in their pharmacy and 30% had taken one or more leaflets to read. Most of the users who had taken leaflets reported finding them useful.

In a survey of health information requests by pharmacy customers in Spain (C1: Dominguez 2000, p77), the commonest topic was medicines (20.8%) and the least frequent was the only topic related to general health – diet and nutrition (5.5%).

A UK consumer survey of 427 'high users' of community pharmacies and of 358 members of the general population, asked participants whether they had noticed or read

leaflets on health matters in the pharmacy (B3: Jesson *et al* 1994, p78). Those who reported having read leaflets were asked if they had found them useful. Two-thirds of high users and half of the general population had noticed leaflets in the pharmacy. Leaflets had been taken and read by 37% of high users and 23% of others. The authors conclude that passive display of leaflets meant they were missed by many pharmacy users.

Pharmacists

A qualitative interview-based study was undertaken in the UK with six community pharmacists who participated in the Barnet 'High Street Health' programme (B3: Anderson 1998*b*, p78). Participants gave broader definitions of health after, than before, the programme. Dispensing duties were reported to be a major constraint on health promotion activity. The needs of patients with asthma were a recurrent theme during the interviews. There was little evidence that participation in the Barnet programme had led to networking with other primary care team members.

Community pharmacists' self-reported current levels of health promotion activity in one area of the UK were studied using structured interviews with a stratified sample of pharmacists (B3: Moore *et al* 1995, p78). Advice was 2.5 times more likely to be reactively responsive rather than proactively offered. Pharmacists generally felt isolated and excluded from local health promotion activities.

An interview-based survey of 48 community pharmacists from one area of the UK explored current and future participation in health promotion activities and potential barriers to further involvement (B3: Keene *et al* 1994, p78). More than three-quarters of the participants believed health promotion activity was beneficial. Most pharmacists indicated that they needed further training in health promotion and that remuneration would be a pre-requisite for further activity. Lack of training, time, and space within the pharmacy were considered as barriers by one-third of those interviewed.

Analysis / discussion point:

The majority of pharmacy users value advice on health and medicines given by pharmacists and the literature suggests there is potential to develop this role further, for example, through pharmacists more proactively offering advice and leaflets.

Main findings:

- Pharmacists attach a high degree of importance to health improvement (B3).
- Pharmacists are more comfortable with health improvement activities that are related to medicines and need support to extend their portfolio of health-related work (B3).
- Pharmacists' advice is more likely to be reactive rather than proactive (B3).
- Pharmacists' concerns about being 'intrusive' in offering potentially unwelcome health advice predisposes to a reactive stance (B3).
- Dispensing duties and a lack of training, time and space within the pharmacy are widely reported to be key barriers to pharmacists' greater involvement in health improvement (B3).

Perceptions of pharmacists of their health education role and the practicalities of implementation (including barriers) were investigated in an in-depth interview study with 10 community pharmacists in the UK (B3: Benson & Cribb 1995, p79). Pharmacists were clear about their health education role in relation to prescribed medicines but less so for topics not involving medicines. The authors concluded that these uncertainties were not only related to the undergraduate training of pharmacists which was primarily based on the biomedical model of health, but also to their expressed concerns about 'interfering' in the lifestyles of pharmacy users.

A postal questionnaire study of community pharmacists' views and experience of the Pharmacy Healthcare Scheme (PHS) was conducted in Wales (B3: Mullan *et al* 1999, p79). Overall attitudes to leaflets were positive, but the response rate was only 46%. Sources of leaflets used were: PHS (76%), commercial (59%), and local Health Promotion Units (HPUs; 41%). Leaflets from commercial sources were perceived to fill gaps on topics not covered by PHS or HPUs, and to be quickly obtainable with plentiful supplies. Most pharmacists (88%) reported that they had never received training or guidance on using health information leaflets. The authors concluded that there is scope to increase the use of PHS and HPU leaflets. While the pharmacists in this study saw handing out leaflets personally as being more effective than leaving them for people to pick up there were no data on the relative frequency of these two methods of distribution. Therefore the extent to which pharmacists' behaviour in practice concords with their expressed views is not known.

Two Canadian surveys of the participation of community pharmacists in health promotion activities were reviewed. Few community pharmacists were found to routinely practise prevention activities in a proactive way, although 90% perceived prevention as being important (B3: O'Loughlin *et al* 1999, p79). Pharmacy owners, those working in pharmacies with a history of prevention activities, and those reporting moderate to high job satisfaction were more likely to report being involved.

Expressed interest was highest in screening for hypertension, raised lipids and diabetes, and in methods of monitoring compliance with medication for coronary heart disease. In a survey of the extent of participation in specific activities, the lowest reported rates were for speaking to community groups on health-related matters, participating in screening programmes, querying clients on their smoking and occupational status, and counselling on HIV prevention (B3: Paluck *et al* 1994, p80). In contrast, the study found that pharmacists reported participation most often in health promotion activities directly related to the dispensing or selling of medicines.

In a US study of 609 community pharmacists' smoking cessation-related activities, 39.5% of respondents reported counselling people on smoking cessation at least once a week and 42% had attended an educational programme on smoking (B3: Williams *et al* 2000, p54). Pharmacists believed that they were qualified to perform smoking cessation interventions. Only 7.5% reported routinely ascertaining users' smoking status.

External stakeholders

Little research has been conducted on the views of external stakeholders on the contribution of the pharmacists to health improvement. One small UK study compared the views of community pharmacists with those of 'pharmaceutical policy makers': health authority Pharmaceutical Advisers and Directors of Public Health (B3: Ursell *et al* 1999, p80). About 44% of community pharmacists and 65% of policy makers responded. The current role of the pharmacist in public health provision was perceived as 'very important' by 11% of policy makers and 50% of community pharmacists. Financial issues were identified as the most important constraint on pharmacists' public health involvement by 41% of policy makers and 14% of community pharmacists, with the latter perceiving lack of time as most important.

A 1995 telephone survey of pharmaceutical advisers of English health authorities quantified local initiatives in

Analysis / discussion point:

Pharmacists are generally very positive about the need for health improvement activities in the pharmacy and their role in delivering this. In practice, however, their approach tends to be reactive rather than proactive and centred around the use of medicines rather than a more holistic view of health.

health improvement that involved community pharmacists (B3: Anderson 1996, p80). The survey achieved an 86% response rate and found that 57% of health authorities reported one or more health promotion activities involving pharmacists. The main barriers perceived by the pharmaceutical advisers were lack of funding and insufficient resources for local development, support and facilitation. The strength and nature of relationships between the health authority, Local Pharmaceutical Committee and Health Promotion Unit were seen as a critical success factor in enabling local activity.

Analysis / discussion point:

Further investigation is needed into the perceptions of the pharmacy's role in health improvement by local health service planners and commissioners and pharmacy's contribution to local planning processes. Insufficient resources for development, support and facilitation locally have been suggested as possible barriers.

4 DISCUSSION

Generalisability of the findings

Published evidence demonstrates that pharmacists can make a positive contribution to improving the public's health. While the generalisability of the findings of smaller individual studies is limited, for most health topics there were groups of small studies indicating positive impact. The extent of any submission and publication bias is not known.¹

The review identified many published studies of the effects of interventions by pharmacists in health improvement. Although the number of RCTs was small, there was a substantial number of intervention studies. The studies were heterogeneous in terms of design and outcome measures, and the robustness of study design was variable. It is noteworthy, however, that a RCT design would not have been appropriate to answer some of the research questions addressed in these studies – a perennial issue in public health research. This is particularly true where the key issue was whether widening access to a service could be achieved safely and acceptably through pharmacies, as was the case, for example, with the supply of emergency hormonal contraception and provision of immunisation services.

Whilst there were multi-pharmacy trials in a number of health topic areas, many of the intervention studies were small in scale, with several involving a single pharmacist delivering the intervention, therefore the generalisability of these study findings is limited. The findings of this review should therefore be considered together with the evidence produced by the additional reports in this series (see 'Introduction' for more details).

Key discussion points

The evidence from the peer-reviewed literature is sufficiently comprehensive in the areas of smoking

¹ In clinical medicine it is recognised that studies showing positive results are more likely to be published while the converse is the case for those where results are neutral or negative. In pharmacy health development there have been many local developmental and pilot studies, few of which have resulted in publications.

cessation and lipid management, emergency contraception and immunisation, that recommendations for their widespread implementation in pharmacies can be made. Further piloting in the UK may be desirable for those activities for which only international data exists, in particular, immunisation and lipid management.

Other activities look promising – for example, diabetes and anti-coagulation monitoring and weight-reduction programmes, but would benefit from further research. Better quality research is also needed in other areas, for example, to test the effectiveness of pharmacy-based interventions, such as advice on folic acid or skin cancer prevention, on pharmacy users' subsequent attitudes and behaviour.

Public response to the involvement of pharmacists in health improvement appears, at times, to be contradictory. When asked in a theoretical way about whether they perceive the pharmacist to have a role in providing general health advice, the public's response tends to be cautious. However, when such advice and services are offered the uptake is generally good, suggesting that the public currently has low expectations of the community pharmacist in providing general health advice.

There was relatively little published research into users' views of services being tested, and little evidence of user involvement in the development of the services themselves. Future research needs to have both greater user input to intervention and service design, and incorporate more feedback from users.

Some members of the public are undoubtedly willing to take up the advice and services offered by pharmacies, and it appears that those currently most likely to do so are already regular clients for prescribed medicines. This creates a paradox that while community pharmacies are visited by the healthy as well as the sick, the former group may be the most difficult to engage.

Indeed, the results of research to date suggest that pharmacists are currently more likely to engage in health improvement activities that are linked to medicines use in some way. The literature also indicates that, at present, pharmacists tend to take a reactive rather than proactive approach to health improvement. There is some evidence that this may result from pharmacists' concerns that unsolicited advice about non medicine-related subjects may be rejected by pharmacy users. Endorsement of pharmacists' involvement in health improvement by other stakeholders (including referrals to pharmacies), and changes to remuneration arrangements could allow and encourage pharmacists to become more proactive in their approach to healthier users thus also increasing public awareness of advice and services available.

The studies reviewed showed most pharmacists to be positive about their potential contribution to health improvement, although the constraining effects of pharmacists' current working practices, existing remuneration arrangements, and some community pharmacy premises were well-described. Training appears to be key in changing community pharmacists' practice to incorporate health improvement activities and embedding a more holistic approach to client care. The published evidence highlights the value of training in helping pharmacists change their behaviour to deliver effective health improvement activities.

5 CONCLUSIONS

The peer-reviewed literature clearly demonstrates the potential of community pharmacists to contribute to improving the public's health.

The evidence from the reviewed literature is sufficiently comprehensive in the areas of smoking cessation, lipid management, emergency contraception, and immunisation, that recommendations for their widespread implementation in pharmacies can be made. Further piloting in the UK may be desirable for those activities for which only international data exists, in particular, immunisation and lipid management, and this research should commence as soon as possible.

The review identified a number of areas where further research is needed; for example, in diabetes monitoring and education. The lack of strategic research is a weakness in the published evidence that needs to be addressed – for example, research on the role of the pharmacy in neighbourhood regeneration and renewal would complement this work but is not available. Funding also needs to be provided to address specific research questions in relation to pharmacy involvement with health improvement and any ensuing training needs.

From the pharmacy profession's perspective, the development areas lie in encouraging greater proactivity through opportunistically offering advice, and improving the training of pharmacists in dealing with health improvement topics that are not directly related to medicines use. It will also be necessary to consider and address existing constraints of community pharmacy practice, remuneration arrangements and premises where appropriate.

From other stakeholders' perspectives endorsing the use of pharmacies and thus extending the public's awareness of the pharmacist's role in giving health advice is key.

Health commissioners and planners can use the findings of this review to incorporate community pharmacy-based health improvement activities into local health services.

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Williams D, Freeman Newson J & Penick Brock T (2000). An evaluation of smoking cessation-related activities by pharmacists. *J Am Pharm Assoc* **40**: 366–70.

Appendix 1. Search terms used for MEDLINE, EMBASE and International Pharmaceutical Abstracts

1. pharmacists ti,ab,sh
2. community pharmacy ti,ab,sh
3. community pharmacy services ti,ab,sh
4. pharmacies ti,ab,sh
5. pharmaceutical services ti,ab,sh
6. #1 or #2 or #3 or #4 or #5 and health education ti,ab,sh
7. #1 or #2 or #3 or #4 or #5 health promotion ti,ab,sh
8. #1 or #2 or #3 or #4 or #5 public health ti,ab,sh
9. pharmac* and smoking cessation ti,ab,sh
10. pharmac* and diet ti,ab,sh
11. pharmac* and body weight ti,ab,sh
12. pharmac* and coronary heart disease ti,ab,sh

Appendix 2. Search terms used for Cochrane Library database

(COMMUNITY and PHARMACY)
(COMMUNITY and PHARMACIST)
PHARMACY
PHARMACIST
PHARMACISTS
PHARMACIES
((((#1 or #2) or #3) or #4) or #5) or #6)
HEALTH-EDUCATION *:ME
HEALTH-PROMOTION
PUBLIC-HEALTH
COMMUNITY-PHARMACIST
COMMUNITY-PHARMACY
(#8 or #9)
((((#1 or #2) or #3) or #4) or #5) or #6)
(#12 and #13)
((((#1 or #2) or #3) or #4) or #5) or #6)
SMOKING-CESSATION*:ME
((((#1 or #2) or #3) or #4) or #5) or #6)
(#15 and #16)
DIET*:ME
((((#1 or #2) or #3) or #4) or #5) or #6)
(#18 and #19)
BODY-WEIGHT*:ME
((((#1 or #2) or #3) or #4) or #5) or #6)
(#21 and #22)
CORONARY-DISEASE*:ME
((((#1 or #2) or #3) or #4) or #5) or #6)
(#24 and #25)
CORONARY-DISEASE
((((#1 or #2) or #3) or #4) or #5) or #6)
(#27 and #28)

Appendix 3. National Service Frameworks: categorisation of evidence

The Department of Health categorises individual studies according to the standard classification set out in its National Service Frameworks:

Evidence from research and other professional literature

- A1** Systematic reviews which include at least one Randomised Controlled Trial (RCT) e.g. Systematic reviews from Cochrane or NHS Centre for Reviews and Dissemination.
- A2** Other systematic and high quality reviews which synthesise references.
- B1** Individual RCTs.
- B2** Individual non-randomised, experimental/intervention studies.
- B3** Individual well-designed non-experimental studies, controlled statistically if appropriate. Includes studies using case control, longitudinal, cohort, matched pairs or cross-sectional random sample methodologies, and well-designed qualitative studies, well-designed analytical studies including secondary analysis.
- C1** Descriptive and other research or evaluation not in B (e.g. convenience samples).
- C2** Case studies and examples of good practice.
- D** Summary review articles and discussions of relevant literature and conference proceedings not otherwise classified.

Appendix 4. Details of reviewed evidence

The abstracted papers are listed by health topic in the order the findings are included in the 'Results' section of the report. Each paper has an evidence grading (see 'Introduction – Criteria for inclusion of evidence' and Appendix 3 for an explanation of the categorisation of grades used). Abbreviations used: RCT, randomised controlled trial; PAS, Pharmacist Action on Smoking; CP, community pharmacy; NRT, nicotine replacement therapy; PMR, patient medication record; PCSQ, pharmaceutical care satisfaction questionnaire; N/A, not applicable; CHD, coronary heart disease; CV, cardiovascular; QOL, quality of life; TBC, total blood cholesterol; OTC, over the counter; INR, international normalised ratio; NEP, needle exchange programme; ECP, emergency contraceptive pill; CDTA, collaborative drug therapy agreements; EHC, emergency hormonal contraception; PGD, patient group direction; NIDDM, non-insulin dependent diabetes mellitus.

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SMOKING CESSATION

Study/authors Maguire TA, McElnay JC & Drummond A. *Addiction* (2001) **96**: 325–31.

A randomised controlled trial of a smoking cessation intervention based in community pharmacies. **B1 UK**

Study design and participants RCT comparing a structured intervention (PAS model) with usual care. 100 CPs in N Ireland and 24 in London were recruited and trained. Each CP was asked to recruit 12 smokers. 44% of pharmacists who were trained recruited one or more smokers in approx. one year. 484 smokers were enrolled and randomised into intervention ($n=265$) and control ($n=219$).

Interventions The PAS intervention involved a structured counselling programme, an information leaflet, weekly follow-up for the first 4 weeks and monthly thereafter as needed. Pharmacists were sent the PAS model and a literature review on smoking cessation and asked to study the material before attending a 3-hour workshop. The

pharmacists were subsequently visited by a researcher.

Outcome measures Primary outcome: self-reported smoking cessation at 12 months with cotinine validation at the 12-month follow-up.

Results 14.3% (38) of PAS group were abstinent at 12-month follow-up compared with 2.7% (6) controls ($P<0.001$). Only a minority of the pharmacists who expressed an initial interest took part in the study and many of these could not recruit patients at the desired rate. Lack of time and remuneration were the major barriers.

Conclusions The CP-based PAS service can be an effective method for smoking cessation when delivered by pharmacists willing to adopt this approach. Questions remain about the proportion of pharmacists who will be interested in becoming involved in interventions of this kind.

Study/authors Sinclair HK, Bond CM, Lennox AS, Silcock J, Winfield AJ & Donnan PT. *Tob Control* (1998) **7**: 253–61.

Training pharmacists and pharmacy assistants in the stage of change model of smoking cessation: a randomised controlled trial in Scotland. **B1 UK**

Study design and participants RCT comparing counselling for smoking cessation based on 'stage of change' model with usual care. 62 (82%) non-city pharmacies in Grampian – 54 pharmacists and 54 assistants – attended the training. 492 smokers (224 intervention, 268 controls) over 12 months.

Interventions Pharmacists provided smoking cessation advice based on the client's 'stage of change'. Pharmacists and assistants participated in a one-evening training session. The training aimed to give participants an understanding of the 'stage of change' model, and focused on brief questioning which could enable counsellors to assess the stage of individual customers and to subsequently increase the frequency and effectiveness of the counselling support by

tailoring their advice to the current stage of the customer.

Outcome measures Self-reported smoking cessation rates for the two groups of customers at 1, 4 and 9 months. Perceptions of customers and pharmacy personnel of the pharmacy support and advice received.

Results At 1 month, prevalence of abstinence was claimed by 30% of intervention and 24% of controls; at 9 months, 12% of intervention and 7% of controls. Intervention customer respondents were significantly more likely to have discussed stopping smoking with pharmacy personnel – 85% (113) compared with 62% (99) of controls ($P<0.001$). Intervention customers also rated their discussion more highly.

Conclusions The intervention was associated with increased and more highly rated counselling and a trend towards higher smoking cessation rates, indicating that pharmacy personnel can make a significant contribution to national targets.

Study/authors Sinclair H, Silcock J, Bond CM, Lennox S & Winfield AJ. *Int J Pharm Pract* (1999) **7**: 107–12.

The cost-effectiveness of intensive pharmaceutical intervention in assisting people to stop smoking. **B1 UK**

Study design and participants RCT comparing 'standard' with 'intensive' pharmaceutical support for smoking cessation. 62 community pharmacies took part. Costs to the health service, pharmacies and clients were recorded. Effectiveness of training was assessed by comparing quit rates at 1, 4 and 9 months.

Interventions Smoking cessation advice tailored to clients' 'Stage of Change'.

Outcome measures Cost of producing one additional successful attempt to quit smoking using intensive rather than standard pharmaceutical support.

Results The cost of producing one additional successful attempt to quit smoking was £300 or £83 per life year.

Conclusions The intervention was associated with higher smoking cessation rates. The key determinants of the incremental cost-effectiveness ratio were the number of quitters, the costs of training and the costs of NRT. Comparable studies, say the authors, show greater costs per quitter for physician intervention and lesser costs per quitter as a result of mass media campaigns.

Study/authors Crealey G, McElnay JC & Maguire TA. *Pharmacoeconomics* (1998) **12**: 323–33.

Costs and effects associated with a community pharmacy-based smoking cessation programme.

B1 UK

Study design and Participants A before and after study of pharmacist advice on smoking cessation based on PAS model. Pilot study in two Belfast pharmacies over a 2-year period, 52 people entered a smoking cessation group (group 1), 48 people who bought NRT were also followed up (group 2).

Interventions The PAS model was used. The 4 stage model involves a written contract between the patient and pharmacist (including a stop date) and a series of brief counselling meetings over approximately 6 months.

Outcome measures The aim was to determine costs and effects associated with the PAS programme, using the perspective of the payer in the main analysis.

Results The cost per life-year saved when using the PAS programme ranges from £196.76 to £351.45 for men and from £181.35 to £722 for women (1997 values) depending on age. This compares favourably with other disease prevention medical interventions such as hypertension or hypercholesterolaemia.

Conclusions These findings, the authors state, provide an argument for adoption and remuneration of the PAS model in the CP setting.

Study/authors Williams D, Freeman Newson J & Penick Brock T. *J Am Pharm Assoc* (2000) **40**: 366–70.

An evaluation of smoking cessation-related activities by pharmacists. **B3 US**

Study design and participants Postal questionnaire survey. Distributed to 541 CPs in North Carolina and 946 in Texas in October 1997. A random stratified sample extracted from registers of CPs.

Outcome measures Types of smoking interventions performed by community pharmacists; smoking cessation knowledge and activities; perceived barriers to providing these interventions.

Results Response rate 609 (41%); 396 (65.8%)

sold tobacco products at practice site. 235 (39.9%) had control over whether tobacco was stocked. North Carolina pharmacies more likely to sell tobacco products. 42% had attended an educational programme on smoking. Only 45 (7.5%) routinely checked people's smoking status. 320 (39.5%) had counselled people regarding smoking cessation on at least a weekly basis. Exploratory factor analysis indicated that barriers to interventions included pharmacists' personal characteristics, practice site considerations, patient characteristics and financial considerations.

Conclusions Although pharmacists believe that they are qualified to perform smoking cessation interventions they do not routinely identify

smokers. Pharmacists should strongly consider the conflicting message communicated by selling

tobacco products in a health care facility.

Study/authors Wick M, Ackermann-Liebrich U, Bugnon O & Cerise C. *Soz präventivmed* (2000) **45**: 73–84.

Evaluation of the Swiss Society of Pharmacists' campaign 'Future non-smoker'. (German paper, English abstract.) **B3 Switzerland**

Study design and participants A before and after study of the effects of a smoking cessation campaign. 616 Swiss pharmacies were invited to participate.

Interventions Pharmacists provided smoking cessation advice.

Outcome measures Documented smoking cessation consultations 1 week before and 6 weeks after the campaign. Pharmacists' perceptions of their smoking cessation counselling and attitudes towards the campaign.

Results 32% of pharmacists completed activity statistics, 58% completed the attitudinal survey. Frequency of counselling was best predicted by customer pattern. The highest frequency was observed among pharmacies with a majority of non-regular customers. Intensity of counselling was predicted by prior training. Those who counselled most frequently were most likely to have most positive views of smoking cessation.

Conclusions Pharmacists can play a role in offering low threshold smoking cessation programmes. Important pre-requisites are motivation with regard to prevention as well as continuing education of pharmacists and pharmacy personnel.

Study/authors Isacson D, Bingfors C & Ribohn M. *J Soc Admin Pharm* (1998) **15**: 164–73.

Quit smoking at the pharmacy – an evaluation of a smoking cessation programme in Sweden. **B3 Sweden**

Study design and participants A 'before and after' study. 20 Pharmacies took part in an 8-week smoking cessation programme. Clients paid 750 SEK (£70) to participate which included one free week's NRT. Postal questionnaire to participants at end of course and at 2, 6, and 12 months. Those who answered the questionnaire received a lottery ticket.

Interventions There were six 1.5-hour meetings in each pharmacy. Pharmacists received 2 days' intensive training as group leaders and on group dynamics with lectures, role plays and discussion with other health care professionals involved in smoking cessation.

Outcome measures Smoker or non-smoker at the end of the intervention and at 3, 6 and 12 months.

Results 140 people participated, 126 answered the first questionnaire, 114, 107, and 109 answered the questionnaire at 3, 6, and 12 months. 60% reported that they had stopped smoking during the intervention, 45% at 3 months, 42% at 6 months and 33% at 1 year. 65% used NRT. 82% had a good impression of the programme. They thought the price of the course was high although employers had paid for most of it.

Conclusions The programme was delivered in collaboration with other health professionals and provides a good example of how pharmacists can work together with other primary health care professionals.

CORONARY HEART DISEASE

Lipid management

Study/authors Nola KM, Gourley DR, Portner TS, Gourley GK, Solomon DK, Elam M & Regel B. *J Am Pharm Assoc* (2000) **40**: 166–73.

Clinical and humanistic outcomes of a lipid management programme in the community pharmacy setting. **B1 US**

Study design and participants RCT comparing pharmacists' intervention (advice on diet, exercise and medication) with usual care (controls). One independent community pharmacy took part. Follow-up was at 6 months. Service provided by 'Pharmacist investigator' not the 'Pharmacy owner'.

Interventions Patients identified using pharmacy PMRs and self-referrals in response to publicity about cholesterol screening at the pharmacy. PMRs were searched to find patients with minimum 6-month history of use of specific medications in hypertension and diabetes. A letter was sent to these patients inviting them for cholesterol screening. Patients attending one of five screening days completed a CHD risk questionnaire. Blood samples were taken by a nurse and sent for testing. A follow-up visit by the patient was arranged for 10 days later when the results were discussed. Patients were referred to their doctor according to guidelines. The pharmacist advised on

diet and exercise and provided information about treatment. Food frequency charts and exercise diaries were used. Patients were seen at 1–2 month intervals depending on their progress.

Outcome measures Lipid levels at baseline, 3 and 6 months; achievement of target lipid levels. CHD risk factor scores. Treatment adherence was assessed through prescription refill data. Patient satisfaction with pharmacy service assessed using PCSQ administered by a pharmacy technician.

Results 191 patients were screened (105 'walk-ins' and 86 'invitees') and 51 (25 intervention, 26 control) took part in the study. Response to the letter of invitation was 19%. 32% of intervention group and 15% control group patients achieved target lipid levels. Risk factor scores improved in the intervention group and worsened in controls. Knowledge about hyperlipidaemia improved in the intervention group but there were no significant between-group differences. Patient satisfaction data was difficult to interpret as baseline data related to 'pharmacist owner' and post-study to 'pharmacist investigator'.

Conclusions The follow-up period (6 months) was short. Lipid levels may have been subject to confounding by seasonal effect.

Study/authors Tsuyuki RT, Johnson JA, Teo KK et al. *Ann Pharmacother* (1999) **33**: 910–19.

Study of cardiovascular risk intervention by pharmacists: a randomised trial design of the effect of a community pharmacist intervention programme on serum cholesterol risk.

B1 Canada

See also

Tsuyuki RT, Johnson JA, Teo KK, et al. *Can J Cardiol* (2000) **16**: 107.

A randomised trial of the effect of community pharmacist intervention on cholesterol risk: the study of cardiovascular risk intervention by pharmacists. **B1 Canada**

Study design and participants RCT of pharmacist intervention in patients at high risk of vascular events. 54 community pharmacies in Alberta and Saskatchewan.

Interventions Intervention and 'usual care' patients receive written information about cardiovascular risk factors. In addition, the pharmacist interviews the patients and completes physician contact form listing patient's risk factors, medication, and any recommendations. Pharmacists provided education on management of risk factors identified. Pharmacist conducted cholesterol test, measured blood pressure and discusses findings with patient. Referrals to physician based on protocol. Follow-up at 2, 4, 8, and 16 weeks. Pharmacists took part in training sessions to review management of heart disease risk factors, especially hyperlipidaemia, and study procedures. The study had a 24-hour helpline available for pharmacists' queries and to ensure randomisation. Investigator meetings were held every 5–6 weeks plus monthly study newsletter.

Outcome measures Lipid profiles; addition or modification of lipid lowering therapy. Patient satisfaction, quality of life.

Results Data were analysed for 565 patients. Average age was 64 years and 39% were female. The primary endpoint was reached in 58% of

intervention patients and 30% in 'usual care' ($P=0.001$). Each component of the primary endpoint was also improved.

Conclusions Community pharmacist intervention improves lipid management.

Study/authors Simpson SH, Johnson JA & Tsuyuki RT. *Pharmacotherapy* (2001) **21** (5): 627–35.

Economic impact of community pharmacist intervention in cholesterol risk management: an evaluation of the study of cardiovascular risk intervention by pharmacists. **B1 Canada**

Study design and participants RCT of pharmacist intervention was conducted in 54 community pharmacies in Canada.

Interventions Cost analysis of CP intervention was carried out assuming improvement in CV risk factor management would translate into reduction in risk. Perspectives of government and community pharmacy managers were adopted to identify resource utilisation and costs. A decision analysis framework was used to identify possible events occurring as a result of the pharmacist–patient interaction.

Outcome measures Change in CV risk (quantified by the Framingham risk function) was

used to predict impact of the pharmacist's intervention on health outcomes. Patients reported numbers of physician visits, nature and frequency of adverse drug events and actions taken to treat them.

Results Sufficient information was available to calculate the change in the Framingham risk estimate for the intervention group. Cost identification was carried out for intervention and control groups. Costs to government healthcare funders were estimated to be Can. \$6.40 per patient per 4 months (covering physician visits and tests). Costs to the community pharmacy manager would be Can. \$22 per 4 months. The 10-year risk of CV disease for patients in the intervention group decreased during the 4-month study period by 5.2%, from 17.3% to 16.4% ($P<0.0001$).

Conclusions The 10-year risk of cardiovascular disease was significantly reduced for patients in the intervention group. Costs of providing the service were calculated.

Study/authors Shibley CH & Pugh CB. *Ann Pharmacother* (1997) **31**: 713–19.

Implementation of pharmaceutical care services for patients with hyperlipidaemias by independent community pharmacy practitioners. **B3 US**

Study design and participants A 'before and after' study involving two independent community pharmacies. Pharmacists received knowledge-based training on lipid disorders and therapy with case studies. Training involved analysis of two patient profiles from pharmacists' own practice and simulated patient interviews. Training on the study protocol included guidelines for cholesterol measurement, diet, exercise, and follow-up. Pharmacists also received training on use of lipid testing equipment.

Interventions Pharmacists measured lipids, blood pressure and weight. Initial counselling was on non-drug approaches. Referral for drug

treatment if needed at 3 months for patients with existing CHD, 6 months otherwise. Patients also saw a dietitian. Follow-up was conducted by the pharmacist. Summaries provided (with patients' consent) at 6 and 12 months.

Outcome measures Lipid levels at baseline, 6 and 12 months; SF-36 survey; pre- and post-study patient satisfaction (MacKeigan-Larson questionnaire). Pre and post-study knowledge assessment completed by pharmacists.

Results 25 patients completed the study, of whom eight were taking lipid-regulating treatment on entry but lipids were not adequately controlled. At the end of the study 14 patients were taking lipid-lowering treatment. Total lipid and LDL were significantly decreased at 12 months compared with baseline or 6 months ($P<0.02$). Significant improvement in QOL and patient satisfaction. Patients reported more positive perceptions of pharmacist's role. Pharmacists'

knowledge of lipid management improved significantly.

Conclusions Non-drug measures had 'a modest impact' on total lipids and LDL. Drug therapy

resulted in a greater reduction. Significant improvements in lipid control, patient satisfaction and patients' perception of pharmacist's role.

Study/authors Bluml BM, McKenney JM & Cziraky MJ. *J Am Pharm Assoc* (2000) **40**: 157–65.

Pharmaceutical care services and results in Project ImPACT: hyperlipidaemia. **B3 US**

Study design and participants Observational study with 2-year follow-up. 26 of an initial 32 community-based ambulatory care pharmacies in 12 states. Sites selected according to: private/semiprivate consultation area; technician support; documentation system for recording and tracking interventions; experience with patient-focused disease management programmes; demonstrated communication skills; ability to implement point-of-care lipid testing (US). Pharmacists received a 2.5 day training programme (later certificated by the American Pharmaceutical Association).

Interventions ImPACT (Improve persistence and compliance with therapy). Patients either newly diagnosed or on treatment but dyslipidaemia not controlled. 'At risk' patients referred by doctors (15%), identified by pharmacists (60%), patient self-referral (13%), or community screening events (12%). Patients gave written consent for pharmacists to receive medical information. Appointment-based system. Pharmacists collected data from patients to assess CHD risk, conducted test for fasting lipid profile. Risk factors and

lifestyle changes discussed. Patients invited for monthly follow-up for 3 months, then quarterly. Patients and their doctors received information on lipid test results, CHD risk and target lipid goals.

Outcome measures Rates of patient persistence and compliance with lipid-regulating therapy; achievement of target lipid levels. Compliance assessed through number of missed doses and refill timing. Defined as non-compliant if more than five doses missed or more than 5 days late for refill. End of study site survey to identify facilitating factors and experiences with obtaining payment for the service.

Results 397 of 574 patients completed the 2-year study. 345 were treated with lipid-regulating drugs; 52 (13.1%) used lifestyle modification only. 38.5% were newly diagnosed, 61.5% were poorly controlled. 346 interventions were made of which 265 (76.6%) were implemented by the doctor. Observed rates for persistence and compliance with treatment were 93.6% and 90.1%. Target lipid levels were achieved by 62.5% patients. First visit, mean 45 mins (range 30–60); follow-ups, mean 22 mins (range 10–30). 64 (53%) of 121 third party funders paid an average of US \$30 per visit.

Conclusions Pharmacists contributed to improved management of dyslipidaemia.

Study/authors Ibrahim OM, Catania PN, Mergener MA & Supernaw RB. *DICP* (1990) **24**: 817–21.

Outcome of cholesterol screening in a community pharmacy. **B3 UK**

Study design and participants A 'before and after' design. Six-month uncontrolled study based in one community pharmacy.

Interventions Obtaining TBC levels, reporting results to patients, patient education on lipids and

health, explanation of heart disease risk factors, follow-up.

Outcome measures TBC levels.

Results Of 241 people tested, 57 had elevated TBC and 51 completed the study. There was a significant decrease in TBC between visits one and two but not between visits two and three.

Conclusions A community pharmacy-based cholesterol screening program resulted in decreased TBC levels.

Study/authors Madejski RM & Madejski TJ. *J Am Pharm Assoc* (1996) **NS36**: 243–8.

Cholesterol screening in a community pharmacy. **B3 US**

Study design and participants A 'before and after' design. One community pharmacy participated.

Interventions Free cholesterol screenings were advertised in newspapers and the pharmacy. Patients made an appointment by telephone and were interviewed for risk factors.

Results A total of 539 patients participated, of whom 78% had elevated cholesterol levels. About

85% of the latter group were followed up. Lifestyle modifications were reported by 85%, information on diet was requested by 81%, and 23% accepted the offer for re-screening.

Conclusions The community pharmacy is an easily accessible site for cholesterol screening that is acceptable to patients. Pharmacies may also benefit financially from increased dispensing of lipid lowering medication.

Identifying pharmacy users with risk factors for CHD

Study/authors Gardner SF, Skelton DR, Rollins SD & Hastings JK. *Pharmacotherapy* (1995) **15**: 292–6.

Community pharmacy databases to identify patients at high risk for hypercholesterolaemia. **B3 Canada**

Study design and participants Case-finding using searches of pharmacy PMRs. Databases held by four community pharmacies were searched.

Interventions Community pharmacy databases were searched for patients prescribed beta blockers, thiazide diuretics, oral hypoglycaemics, insulin, sublingual nitrates, nicotine gum, nicotine patches. These patients were invited to attend for cholesterol screening. Testing was also available to other pharmacy customers.

Outcome measures Cholesterol levels of screened patients.

Results 426 patients were identified from the pharmacy records. Of these, 88 attended for cholesterol screening. An additional 97 'walk-ins' were also tested. Cholesterol levels were significantly higher in patients in the targeted group. Borderline levels were found in 36% of the invited and 30% of the walk-in groups. High levels were found in 32% and 19% respectively.

Conclusions Targeting patients using data from PMRs was an effective method for identifying patients with raised lipid levels.

Study/authors Simons LA, Levis G & Simons J. *Med J Aust* (1996) **164**: 208–11.

Apparent discontinuation rates in patients prescribed lipid lowering drugs. **B3 Australia**

Study design and Participants Prospective survey of 12 months dispensing data from 138 community pharmacies in Sydney.

Interventions Patients who stopped having their prescription for a lipid lowering drug dispensed were asked why they had stopped treatment.

Outcome measures Number of patients failing to collect prescription refills.

Results 610 patients were identified. 60% apparently discontinued their statin during the study period. Half of the apparent discontinuations occurred within 3 months of starting treatment and a quarter after 1 month. The relative risk of discontinuation was higher in those showing early evidence of poor compliance. The main reasons given by patients for discontinuation were: unconvinced of need for treatment (32%), poor efficacy (32%) and adverse events (7%).

Conclusions Discontinuation rates for statins were high and patients' reasons for stopping treatment indicate scope for intervention.

Study/authors Allison C, Page H & George S. *J Epidemiol Community Health* (1994) **48**: 178–81.

Screening for coronary heart disease risk factors in retail pharmacies in Sheffield, 1992. **B3 UK**

Study design and participants Questionnaire survey of all community pharmacies on the Sheffield Family Health Services Authority list (102).

Outcome measures Numbers of pharmacies currently offering screening tests and stated future intent to do so.

Results Response rate was 75% (77). Nine (12%) offered screening tests other than pregnancy testing. Overall 37 (48%) indicated that they might

offer tests in the future. Pharmacies offering or likely to offer screening were more likely to be owner proprietors. The most frequent comments by respondents were about the commercial viability of screening and lack of space to ensure privacy/confidentiality.

Study/authors Flobbe K, Ljsselmuiden CB, Rheeder P, Gerber JJ & Lubbe M. *S Afr Med J* (1999) **89**: 980–6.

The pharmacy screening project – an evaluation of pharmacy-based screening programmes. **B3 South Africa**

Study design and participants Cross-sectional survey of pharmacists providing diagnostic testing services. Survey of 198 community pharmacies in three areas of South Africa. Pharmacies were initially contacted by phone to identify those providing 'screening' services. Those doing so and who agreed to participate were visited and a questionnaire was administered.

Outcome measures Proportion of community

pharmacies providing screening, types of test used, costs to patients, criteria for selection of target groups, pharmacists' knowledge about the screening tests they used and their attitudes towards screening.

Results Overall 57% of pharmacies provided at least one screening test. Blood pressure measurement, serum cholesterol, capillary glucose and pregnancy testing were the most commonly-offered services. Screening tests were conducted less than five times a week except for blood pressure measurement, which was more frequent. Only 35% of pharmacists kept records. No quality control procedures were used. Pharmacists' knowledge about the tests, e.g. false positive and false negative results, was poor.

Study/authors Jungnickel PW & Wisheart DA. *J Am Pharm Assoc* (1997) **NS37**: 640–6.

Evaluation of community pharmacists' experiences with cholesterol screening programs. **B3 US**

Study design and participants Cross-sectional survey of pharmacists. Postal questionnaire of pharmacists in charge at all Nebraska community pharmacies.

Interventions N/A

Outcome measures Number of pharmacists reporting cholesterol test provision from their

premises; involvement of pharmacists in patient monitoring.

Results 308 pharmacists responded and cholesterol screening had been undertaken on 83 of these pharmacy premises. Where screening had taken place only 61% of the pharmacists reported having monitored the screening process. Few pharmacists were aware of the process for identifying high risk patients. Only eight pharmacists had received a list of patients who had been recommended to contact their doctor. Only 3 of 30 pharmacists had reminded patients to do so.

Study/authors Hampton A, Wilson A & Hussain M. *Fam Pract* (1990) **7**(1): 52–5.

Measuring blood pressure in an inner city pharmacy: an attempt at coordination with general practice. **B3 UK**

Study design and participants Non-targeted case finding through provision of blood pressure measurement service. One community pharmacy took part.

Interventions Free blood pressure checks were offered for 6 weeks, targeted at those aged 30–64 years. The pharmacist invited 120 clients to take part, of whom 70 (58%) agreed. Clients were given a copy of the reading to take to their GP. GPs were interviewed about the scheme.

Outcome measures Numbers of blood pressure readings taken. Presence of readings in GP notes. Attitudes of GPs towards the scheme.

Results The GP records of 40 patients were checked, of which only 10 contained the pharmacy reading. The records of higher readings were more

likely to be present. Most of the GPs interviewed were not enthusiastic about the scheme.

Secondary prevention with aspirin

Study/authors Horne F. *Pharm J* (1998) **261**: R44.
Community pharmacy audit: sales of aspirin in community pharmacies in Ealing, Hammersmith and Hounslow. **B3 UK**

Study design and participants Case finding through survey of pharmacy customers. Two audits of aspirin purchases in 21 and 26 community pharmacies respectively. Patients purchasing aspirin were asked to take part in the survey.

Interventions Audit 1: 21 pharmacies recorded sales of 'P' aspirin over a 6-week period in October–November 1996. Purchasers were asked why they were buying the aspirin, classified as: for first aid use (e.g. analgesia, colds) / cheaper than prescription/ told to purchase by GP/ told to purchase by hospital/ other member of family taking aspirin/ read about in newspaper or magazine/ other. Purchasers were also asked if their GP knew they were taking aspirin and what dose they were taking; Audit 2: 26 pharmacies recorded sales of 75mg aspirin over a 4-week period in February 1998.

Outcome measures Audit 1: patients' reasons for purchasing OTC aspirin Audit 2: GPs' awareness of aspirin-taking among their patients. Pharmacists recorded pack size, product, if the purchaser was the patient, if they were taking aspirin daily, if their GP knew they were taking aspirin, if they had ever been prescribed aspirin, and why they were taking aspirin.

Results Audit 1: of 540 sales 341 (63%) were for reasons other than 'first aid', mainly 75 mg tablets. 12% said they took aspirin because another family member did so and a further 11% on the basis of newspaper or media reports. 21% said their GP was unaware they were taking aspirin. 271 leaflets were issued to purchasers. Audit 2: of 277 sales 89% were for cardiovascular indications or stroke. 73% of purchasers said their GP knew they took aspirin, 16% (44) that their GP did not know and 11% (30) could not confirm whether their GP knew or not.

Study/authors Black PE, Blenkinsopp A & Kinghorn I. *Pharm J* (1998) **261**: R51.

An investigation into the information needs of users of low dose aspirin. **B3 UK**

Study design and participants Cross-sectional survey of patients taking prophylactic aspirin. Telephone interviews with patients receiving 75 mg aspirin on prescription or purchasing it over the counter in six community pharmacies.

Interventions Six community pharmacists invited patients with a prescription for 75 mg aspirin or requesting to purchase the medicine to take part in the survey.

Outcome measures Reasons for taking aspirin;

knowledge of aspirin's use in CHD prevention.

Results 128/141 patients approached (91%) agreed to take part of whom 108 were subsequently contactable. 70 (65%) had received aspirin on prescription and 38 (35%) had purchased it. 89 were taking aspirin for secondary prevention and 19 for primary prevention. 10% showed 'little', 69% 'some' and 18% 'good' understanding of aspirin. Only 33% recalled receiving any information about aspirin. 92 (85%) said they would be willing to receive information about aspirin from the pharmacist and 78% said the pharmacist was qualified to give such advice. However, only 57% thought that pharmacies were a suitable venue to receive this sort of advice.

Anticoagulation

Study/authors Knowlton CH, Thomas OV, Williamson A, Gammaitoni AR, Kirchain WR, Buttaro ML & Zarus SA. *J Am Pharm Assoc* (1999) **39**: 368–74.

Establishing CP-based anticoagulation education and monitoring programmes. **B3 US**

Study design and participants A before and after design. Three CPs with existing health education centre and laboratory facilities. Pilot study with convenience sample of patients referred by primary care physicians.

Interventions The pharmacists conducted regular patient assessment including adherence to treatment, medication use (including over the counter medicines), dietary aspects including use

of vitamins, health foods, supplements and changes in dietary and alcohol intake. Pharmacists also measured INR.

Outcome measures Percentage of INR values within therapeutic range compared with values reported for anticoagulant clinics, major bleeding events, and thrombotic events.

Results 26 patients were referred to the three pharmacy clinics by two primary care physicians. Of these, 21 charts were available for analysis. More than 80% of patients had INR values within their targeted range 60% or more of the time. Of the 235 INR values obtained during the study 75% were within the individualised targeted therapeutic range.

OBESITY AND WEIGHT REDUCTION

Study/authors Tubro S, Dahlger I, Hermansen I, Herborg H & Astrup AV. *Ugeskr Laeger (J Danish Med Assoc)* (1999) **161**: 5308–13. (English abstract, article in Danish.)

Dietary guidelines on obesity at Danish pharmacies. Results of a 12-week course with 1-year follow-up. **B3 Denmark**

Study design and participants Retrospective uncontrolled study. Results of a 12-week slimming course for obese subjects held at 19 Danish pharmacies (8–20 subjects/ pharmacy) at 1-year follow-up were evaluated. 269 obese subjects took part in the study (259 females) (BMI >25 kg/m²) paid Dkr 550 each. Pharmacists participated in 2 days compulsory training for pharmacy team leaders – (personal communication).

Interventions Course included eight 1.5-hour sessions. Education in nutrition and physiology aiming for a dietary change toward a low fat high carbohydrate diet.

Outcome measures Self-reported body weight assessed on pharmacy scale before and after the course and at 3, 6, and 12 month follow-up.

Results 191 (71%) completed programme. Average weight loss was 5.3 kg females and 6.2 kg males. 122 (45%) of participants were followed up at 1-year was 4 and 6.7 kg in 118 females and 4 males respectively. At 1-year follow-up, 40 subjects (20%) who had completed the course had maintained a weight loss of >5 kg.

SKIN CANCER PREVENTION

Study/authors Mayer JA, Slymen DJ, Eckhardt L, Rosenberg C, Palmer RC, Elder JP, Graf G & Anderson ST. *Cancer Detect Prev* (1998) **22**(4): 367–75.

Skin cancer prevention counselling by pharmacists: specific outcomes of an intervention trial **B1 US**

Study design and participants RCT of the effect of training, practice prompts and counselling aids on pharmacists' advice about skin cancer

prevention. 54 chain community pharmacies (61% of local total) randomly assigned to intervention / control. 178 pharmacists took part. Pharmacies selected by researchers based on census data. Sites with higher proportion of non-Hispanic whites were targeted. Video-based training developed for the project and provided to the 27 intervention sites. Content was acted scenarios modelling brief interventions in practice. Written support material

provided. Pharmacists received credit points for continuing education.

Interventions Seven-week intervention period. Intervention sites received: (1) video-based training for pharmacists; (2) prompts installed in pharmacy to promote discussion (mugs, badges, posters); (3) leaflets and sunscreen samples placed behind counter for staff to distribute; (4) group-based feedback on previous week's counselling rates reported by mystery shoppers. Rates posted on staff notice boards and in pharmacists' mailboxes.

Outcome measures (1) Counselling rate measured by 'mystery shoppers' ('confederate') visited all pharmacies three times a week for 3 weeks and recorded whether, in response to an unrelated OTC request, pharmacists counselled

about skin cancer prevention. (2) pharmacists' self-reported (a) knowledge of skin cancer, (b) perceived expertise, and (c) attitudes to counselling on skin cancer prevention. Measured by pre- and post- project mail questionnaire.

Results 53% of pharmacists completed both pre- and post-test questionnaires. Intervention pharmacists scored higher on knowledge and self-rated expertise on skin cancer. No differences in attitude scores. In 'mystery shopper' visits counselling on skin cancer was provided by intervention pharmacists on 53 of 243 occasions (21.8%). Most counselling (87%) was verbal. Some correlation between mystery shopper reports and pharmacists' self-reported counselling rates. Pharmacists reported positive perceptions of the programme.

Study/authors Lindholm LH, Isacson A, Slaug B & Moller TR. *J Cancer Ed* (1998) **13**: 207–12.

Acceptance by Swedish users of a multimedia programme for primary and secondary prevention of malignant melanoma. **C1 Sweden**

Study design and participants Observational study of effect of installing touchscreen information kiosk. One community pharmacy, one library.

Interventions Kiosk with touchscreen public

education programme on malignant melanoma.

Outcome measures Ease of use; ease of understanding; recall of recommendations given; worries/concerns following the programme; stated intent to change behaviour.

Results 274 people used the programme, mostly (224) at the pharmacy 29% (mainly young women) said they would change their sun exposure behaviour. 66% found the programme 'worrying'.

Study/authors Leinweber CE, Campbell HS & Trottier DL. *Can J Public Health* (1995) **86**: 380–3.

Is a health promotion campaign successful in community pharmacies? **B3 Canada**

Study design and participants Pre- and post-campaign survey of community pharmacists for a skin cancer awareness campaign.

Interventions A sun awareness campaign 'Be Sun Smart' was run by a collaboration between pharmacy and health development organisations in Alberta, Canada.

Outcome measures Pre-campaign and post-campaign: attitudes and knowledge about skin cancer. Post-campaign: pharmacists' self-reports about the campaign.

Results Community pharmacists' knowledge on skin protection and skin cancer was high prior to the campaign and was increased at the post-campaign survey. There was a high degree of pharmacist acceptance of community pharmacy based public education campaigns.

DRUG MISUSE

Study/authors Luger L, Bathia N, Alcorn R & Power R. *Int J Drug Policy* (2000) **11**: 227–34.

Involvement of community pharmacists in the care of drug misusers: pharmacy-based supervision of methadone consumption. **B3 UK**

Study design and participants Longitudinal follow-up of clients receiving methadone treatment with pharmacy supervised administration. Pilot project involving 17 CPs in Camden and Islington over 9 months in 1998. A training day included

information on drug misuse, treatment of addiction, dose assessment, methadone and strategies to deal with difficult incidents.

Interventions Pharmacists supervised the administration of methadone for clients in the pharmacy and kept records of patients' attendance.

Outcome measures Client attendance rates. Acceptability and feasibility of the scheme from perspectives of pharmacists, clients and key workers.

Results 2738 methadone consumption supervisions took place, with an attendance rate of 95.2% for 79 registered clients. 45 of whom were in the scheme throughout the study. Supervision took less than 5 minutes, excluding paperwork. On the whole experience of the pharmacists with the clients were good. 67% of pharmacists found it satisfying to work with methadone clients. 33% of pharmacists found it difficult to cope with the clients. 68% of clients found it to be a 'reasonable service'. Most key workers welcomed the scheme.

Study/authors Sheridan J, Lovell S, Turnbull P, Parsons J, Stimson G & Strang J. *Addiction* (2000) **95**: 1551–60.

Pharmacy-based needle exchange (PBNX) schemes in south-east England: a survey of service providers. **B3 UK**

Study design and participants Postal self-completion survey to (1) all community pharmacists participating in PBNX in south-east England and (2) needle exchange co-ordinators in the same area.

Interventions Almost three-quarters of pharmacists had undertaken training (unspecified) on needle exchange and 80% reported satisfaction with the training received. In contrast 40% of pharmacists reported that their staff had received no training.

Outcome measures Business operation and policies; day to day work of PBNX outlets (level of exchange activity in the previous month); problems encountered by PBNX providers.

Results Response rates were 86.7% for pharmacists after telephone follow-up of non-responders, and 88.9% for co-ordinators. The mean number of transactions per pharmacy in the previous month was 49 (range 0–1000). Responding pharmacies had a mean of 16.7 clients (range 0–350) of whom a mean of 14.1 were regular clients using the service once a month or more frequently. The return rate of injecting equipment was 30%. Two-thirds of pharmacies reported dispensing oral methadone. Pharmacists reported further training needs for both themselves and their staff.

Study/authors Lurie P, Gorsky R, Jones TS & Shompe L. *J Acquir Immune Defic Syndr Hum Retrovirol* (1998) **18**: S126–32.

An economic analysis of needle exchange and pharmacy based programs to increase sterile syringe availability for injecting drug users. **B3 US**

Study design and participants Economic analysis comparing costs of different needle/syringe provision schemes in a range of settings.

Outcome measures Estimated cost per syringe distributed for five syringe distribution strategies: a NEP, pharmacy based NEP, free pharmacy distribution of pharmacy kits, sale of such kits to injecting drug users and sale of syringes in pharmacies. Relative cost of these strategies in preventing HIV infection in injecting drug users.

Results Costs were: NEP US \$0.97, pharmacy NEP US \$0.37, pharmacy kit distribution US \$0.64, pharmacy kit sale US \$0.43, syringe sale US \$0.15.

Study/authors Sheridan J, Strang J, Barber N & Glanz A. *BMJ* (1996) **313**: 272–4

Role of community pharmacies in relation to HIV and drug misuse: findings from the 1995 national survey in England and Wales. **B3 UK**

Study design and participants Cross-sectional survey. Self-completion questionnaire distributed to a random one in four sample of all community pharmacists in England and Wales in 1995.

Outcome measures Current activity levels: (a) dispensing of controlled drugs to drug misusers; (b) sale of needles and syringes; (c) needle and syringe exchange. Comparison with previous survey conducted in 1988.

Results Response rate was 74.8% after four

mailings. In 1995, 50.1% were dispensing controlled drugs for drug misusers, increased from 23.0% in 1988. Injecting equipment was being sold by 34.5% (28.0% in 1988). A needle exchange service was being provided by 18.9% compared with 3.0% previously.

Study/authors Gleghorn AA, Gee G & Vlahov D. *J Acquir Immune Defic Syndr Hum Retrovirol* (1998) **18**: S89–93.

Pharmacists' attitudes about pharmacy sale of needles/syringes and needle exchange programmes in a city without needle/syringe prescription laws.

B3 US

Study design and participants Cross-sectional survey. Telephone interviews with 75 randomly selected community pharmacists in Baltimore, USA.

Outcome measures Willingness to sell

needles/syringes and any procedures/requirements for such sales. Awareness of and attitudes to, the Baltimore NEP.

Results Overall 87% of pharmacists reported selling needles and syringes at their discretion, and 61% (46) pharmacists described having one or more procedures for the sale of needles and syringes. Of those pharmacists reporting such procedures 54% asked for picture identification, 34% required a prescription and 34% a diabetic identification.

Study/authors Scott J, Kennedy EJ, Winfield A & Bond CM. *Pharm J* (1998) **261**: R24.

Investigation into the training needs of an information pharmacist at a drug counselling and needle exchange agency. **C1 UK**

Study design and participants Qualitative study. Analysis of 70 queries received by a pharmacist during sessions at a drug counselling and needle exchange service.

Outcome measures Training needs of pharmacists working with drug users.

Results Categories of query were: drug information; adverse drug reactions; health problem (drug-related); health problem (non drug-related); identification of pharmaceuticals; harm reduction techniques; drug testing; 'other'. Being able to respond to drug users using familiar terms was also identified as a key need.

Study/authors Matheson C, Bond CM & Mollison J. *Addiction* (1999) **94**: 1349–59.

Attitudinal factors associated with community pharmacists' involvement in services for drug misusers. **B3 UK**

Study design and participants Cross-sectional national survey. Questionnaire survey of 'pharmacists in charge' of community pharmacies in Scotland.

Outcome measures Descriptive data collected on demography, drug misuse service provided, training. Attitude statements were used and these

were incorporated into a scale which was correlated with behavioural data on whether or how services were provided.

Results Response rate was 79%. Pharmacists that provided services had significantly more positive attitudes to drug misusers. Attitudes were also associated with health board (more positive if more services), sex (male more positive) and years on register (less time more positive). Attitude was an independent predictor of whether needles/syringes were sold, methadone was dispensed and methadone consumption supervised.

Study/authors Matheson C, Bond CM & Hickey F. *Fam Pract* (1999) **16**: 375–9.

Prescribing and dispensing for drug misusers in primary care: current practice in Scotland. **B3 UK**

Study description and participants Objectives were to obtain baseline data on current prescribing practice by medical practitioners and drug agencies; dispensing practice by community pharmacists across Scotland for the management of drug misuse, and variations in practice between local health boards. A structured postal questionnaire was sent to all community pharmacists in Scotland ($n = 1142$) in 1995.

Outcome measures Percentages of pharmacies dispensing drugs for the management of drug misuse; percentage of methadone prescriptions

requiring supervised administration; percentage of pharmacies providing this service.

Results The response rate was 79%. Sixty-one per cent of pharmacists were currently dispensing drugs for the management of drug misuse. Sixty-five per cent of methadone prescriptions were dispensed daily on the request of the prescriber. Of the 3387 people receiving a methadone prescription, 32.9% had to consume their daily dose on the pharmacy premises under a pharmacist's supervision. Nineteen per cent of pharmacies provided a service to supervise the consumption of methadone and a further 14% were prepared to but said they had no demand for the service. The proportion of prescriptions requesting supervision of methadone consumptions varied considerably between health boards.

Study/authors Matheson C & Bond CM. *Int J Pharm Pract* (1999) **7**: 256–63.

Motivations for and barriers to community pharmacy services for drug misusers. **B3 UK**

Study description and participants The objective was to investigate what motivated pharmacists to provide services for drug misusers and to identify barriers preventing service provision. Telephone interviews were conducted with a purposive sample of 45 community pharmacists who had responded to a national questionnaire survey.

Outcome measures Factors that motivated pharmacists to provide drug misuse services or

were cited as reasons not to participate in service provision.

Results Pharmacists were found to be motivated to provide services by an awareness of the needs of the community, a desire to reduce the spread of blood-borne diseases, and a desire to expand their professional services. Barriers to service provision were concerns for the effect of service provision on other customers, safety, workload and poor remuneration. The authors concluded that the active encouragement of local health boards, further education and remuneration might encourage pharmacists' participation in drug misuse services.

EMERGENCY HORMONAL CONTRACEPTION

Study/authors Hayes M, Hutchings J & Hayes P. *Matern Child Health J* (2000) **4**: 203–8.

Reducing unintended pregnancy by increasing access to emergency contraception pills. **B3 US**

Study design and participants A before and after study of pharmacy supply of emergency hormonal contraception. Pilot project in Washington state involving 140 pharmacies. 1000 pharmacists received training.

Interventions Pharmacists were enabled to prescribe ECP through CDTAs with physicians. A

public awareness campaign was conducted, with an ECP hotline.

Outcome measures Numbers of participating pharmacies; numbers of CDTAs established; numbers of ECP prescriptions provided.

Results 140 pharmacists participated and 145 CDTAs were created. In 16 months of pharmacy provision 11,969 ECP prescriptions were provided, preventing an estimated 700 unintended pregnancies. Calls to the ECP hotline increased from 116 to 1160 per month.

Study/authors Sommers SD, Chaiyakunapruk N, Gardner JS & Winkler J. *J Am Pharm Assoc* (2001) **41**: 60–6.

The emergency contraception collaborative prescribing experience in Washington state. **C1 US**

Study design and participants Questionnaire survey of service providers and users. Provider questionnaires were distributed 6 months after the programme started. User questionnaires were distributed at the point of service and returned by mail.

Interventions An ECP programme for supply through community pharmacies was established in Washington state. The scheme encouraged pharmacists and prescribers to establish

collaborative prescribing arrangements, whereby pharmacists were authorised to prescribe ECP.

Outcome measures User satisfaction with interaction with the pharmacist and specific information. Provider attitudes towards, and experiences of the programme.

Results Response rates were 51% (159) for pharmacists, 27 (49%) for prescribers and 470 (6.5%) for users. Most (92%) of pharmacists and prescribers were 'satisfied' or 'very satisfied' with their prescribing agreements. Pharmacists were highly rated by users for their interactions with patients and quality of information about ECP use. Ratings were lower for information about side effects, recognition and follow-up of ECP failure, and regular contraceptive methods.

Study/authors Bissell P, Savage S, Anderson C & Goodyer L. *Proceedings of 7th Health Services Research and Pharmacy Practice Conference, Nottingham*, (2001).

Regulating sex: a potent new role for pharmacists? Attitudes to the supply of emergency hormonal contraception. **B3 UK**

Study design and participants Qualitative study. In depth interviews were carried out with 20 community pharmacists supplying emergency hormonal contraception in the Lambeth, Southwark and Lewisham area of London and with 24 pharmacists in the Manchester, Salford and Trafford area.

Interventions In late 1999 and early 2000, community pharmacists in Manchester, Salford and Trafford, and Lambeth Southwark and Lewisham Health Action Zones began supplying EHC under PGD. On completion of a training program, pharmacists could supply EHC to women free,

following a confidential consultation. Pharmacists were paid a fee per consultation.

Outcome measures Pharmacists' perception of the scheme.

Results Pharmacists were extremely positive about supplying EHC under PGD. However, some were concerned that the supply of EHC through pharmacies might encourage 'abuse' or repeated use. Pharmacists were against deregulating EHC on the grounds that it might promote abuse of a potentially 'potent' product. The cost of EHC was thought likely to be a disincentive to use amongst poor women. Accounts about safety and appropriate use of EHC were seemingly intertwined with social attitudes and values. In addition, pharmacists' support for the PGD supply route appeared to stem from the desire for enhanced professional status as much as providing an important public service.

Study/authors Sharma S, Anderson C. *Health Ed J* (1998) **57**: 42–50.

The impact of pharmacy using window space for health promotion about emergency contraception. **B3 UK**

Study design and participants A 'before and after' study of the effect of pharmacy window displays on enquiries about emergency contraception. 20 pharmacies participated in Ealing, Hammersmith and Hounslow Health

Authority, in conjunction with West London Health Promotion Agency. Pharmacists attended an evening seminar to introduce the scheme. Pharmacies were paid £250 for participating.

Outcome measures Number of enquiries about ECP, number of leaflets, ECP dispensed, pregnancy tests sold, 2 weeks before, during, and 2 weeks following campaign. Customer questionnaire to determine response to the display and how they would use pharmacies.

Results 20 pharmacies collected data. Enquiries increased between two- and fourfold. 13 collected leaflet data – there was an increase in leaflet uptake by between three- and 43-fold. There was a fourfold increase in number of pregnancy tests sold and three times more prescriptions for ECP

were dispensed. 160 women mainly aged from 12–25 years responded to the survey. The majority considered the display to be ‘good or very good’, and only 6% had not noticed it. 60% said they would use their pharmacist in the future for advice about ECP.

Study/authors Anderson C. *Patient Educ Couns* (2000) **39**: 285–91.

Health promotion in the community pharmacy: the UK situation. **C1 UK**

Study design and participants Literature review.

Results Most studies were small scale. Use of pharmacy window displays increased uptake of leaflets and numbers of prescriptions for

emergency contraception. Health promotion innovations introduced by individual pharmacists, pharmacy multiples and NHS health authorities/boards were described. Remuneration and commercial opportunity costs (e.g. from reallocation of sales space) remain unresolved. Training on health promotion may lead to a more holistic view of health among pharmacists. The specific components of training that might contribute to this effect are unknown.

Study/authors Anderson C, Bissell P, Sharma S & Sharma R. *Int J Pharm Pract* (2001) **9** (Suppl): R56.

Supplying emergency contraception in the pharmacy: the perspectives of service users. **B3 UK**

Study design and participants Quantitative survey and qualitative interviews with service users. 53 pharmacies participating in a scheme to supply emergency hormonal contraception were asked to distribute a questionnaire to each service user. Qualitative research was conducted with a sample of service users.

Outcome measures Service users’ level of

comfort in discussing emergency contraception with the pharmacist; whether privacy was perceived as sufficient; satisfaction with how their request was dealt with.

Results 91% felt ‘very comfortable’ or ‘comfortable’ about discussing emergency contraception with the pharmacist. Privacy was felt to be sufficient by 86% of respondents. 99% were ‘satisfied’ or ‘very satisfied’ with the way their request for emergency contraception had been dealt with. Confidentiality was an issue for 16%, who said they were ‘concerned’ or ‘very concerned’ that their request would not be kept confidential.

Study/authors Stergachis A. *Sexually Transmitted Dis* (1999) **26**: S44–7.

Roles for pharmacists in the prevention and control of sexually transmitted diseases. **D US**

Study design and participants Discussion paper.

Results Community pharmacies in deprived areas could provide key access points for prevention and treatment of sexually transmitted diseases. Discusses the Washington state protocols for pharmacist supply of oral contraceptive pills.

FOLIC ACID AND PREGNANCY

Study/authors Rajyaguru R & Anderson C. *Proceedings of the 5th Health Services Research and Pharmacy Practice Conference, Aston* (1999).

Evaluation of a community pharmacy service package to promote the use of folic acid in planned pregnancy. **B3 UK**

Study design and participants Qualitative study. In depth interviews with 14 pharmacists, 14 medicines counter assistants, and a number of stakeholders to ascertain their views about a test service package to promote the use of folic acid in pregnancy. The findings were intended to inform the production of a final version of the package.

Interventions Pharmacists and assistants had attended one evening training session as part of the project. They received promotional materials including leaflets, posters, and window display materials.

Outcome measures To explore experiences on staging and managing the project. Constraints, motivating factors, use of the promotional materials ease of implementation, participants understanding of their role as health promoters, and to provide feedback on training.

Results Most pharmacists and assistants felt comfortable when advising regular customers. Leaflets, poster, and window displays were more likely to target passing trade. Most of the pharmacists and assistants from ethnic minority groups felt they had an important role in communicating about folic acid with customers from those groups. A number of constraints and future training needs were identified. The need to have a project facilitator was also identified.

Study/authors De Jong-Van den Berg LTW, Van der Zee AH, Schaafsma E, De Smit D, Anderson C & Cornel MC. *Int J Pharm Pract* (1999) **7**: 138–42.

Counselling women about periconceptional use of folic acid: the role of the community pharmacist can be improved. **B3 Netherlands**

Study design and participants Cross-sectional survey. Postal questionnaire to random sample of community pharmacists in the Netherlands.

Interventions Pharmacists were encouraged to use an additional label when dispensing oral contraceptives to encourage women, if and when they decided to have a child, to take folic acid.

Outcome measures Knowledge, behaviour, and attitudes about the use of folic acid by women of childbearing age.

Results Response rate 72%. An additional label about folic acid for use on oral contraceptives was being used by 30% of respondents. However 63% of respondents who did not use the labels expressed concerns about 'imposing' information on women who might not want it. Pharmacists' perceptions about local GPs' attitudes also appeared to influence their willingness to promote folic acid use. Compared with a similar survey 2 years earlier, more pharmacists appeared to be promoting folic acid.

ASTHMA

Study/authors Bell HM, McElnay JC, Hughes CM, Gleadhil I. *J Asthma* (2000) **37**: 545–55.

Primary schoolteachers' knowledge of asthma: the impact of pharmacist intervention. **B2 UK**

Study design and participants Controlled trial of education intervention on asthma for primary school teachers. Effects assessed by postal self-completion questionnaire distributed to 73 schools in Northern Ireland (150 were invited to take part).

Interventions After completion of the baseline questionnaire by intervention and control schools, the five intervention schools were visited by a pharmacist. The pharmacist led a 30-minute educational session based on the package produced by the National Asthma and Respiratory Training Centre. Intervention schools were revisited at 4 weeks and the

questionnaire was repeated. Intervention schools received a training session from a pharmacist. Topics covered included asthma symptoms, trigger factors, asthma medications, use of inhalers and actions to take if a child had an attack.

Outcome measures Teachers' knowledge about asthma.

Results 344 questionnaires were returned. 81.4% of teachers reported having at least one child with asthma in their class. 19.4% had received previous training about asthma. One in 10 teachers had asthma and 39.4% had a family member with asthma. The mean knowledge score was 20.71, which the authors classify as 'acceptable'. Pre- and post-study scores for 36 interventions were 18.41 and 21.22, and for 45 control teachers were 19.78 and 19.98, a statistically significant difference ($P=0.002$).

DIABETES

Study/authors Sarkadi A & Rosenqvist U. *Patient Education Couns* (1999) **37**: 89–96.

Study circles at the pharmacy – a new model for diabetes education in groups. **B3 Sweden**

Study design and participants A 'before and after' study to test the feasibility of a 1-year group education model for patients with NIDDM at Swedish pharmacies. The evaluation took place from 1997 to 1999 and included 39 patients from eight study groups who had participated for more than 5 months. Pharmacists and nurses participated in a 3-day training course. Continuous training and support were available throughout the study.

Interventions The groups promoted learning

through peer group help and gave emotional support to participants.

Outcome measures (1) HBA1c level (2) Utility of study group.

Results Metabolic control as indicated by HBA1c improved significantly after 6 months but reverted to baseline at 12 months. Participants were more likely to be in the acceptable range for HBA1c than the population at baseline, indicating a more motivated group. Participants appreciated the form and content of the groups. Many said they would recommend it to someone else with NIDDM. More than half said that their perception of their disease and its treatment had changed as a result of participating.

Study/authors Timmer JW, de Smet PAGM, Schuling J, Tromp TFJ & de Jong-van den Berg LTW. *Pharm World Sci* (1999) **21**:200–204.

Patient education to users of oral hypoglycaemic agents the perspective of Dutch community pharmacists. **B3 Netherlands**

Study design and participants Qualitative interviews with seven pharmacists and seven technicians with considerable experience of giving advice in NIDDM. Nominal group technique was also used.

Outcome measures To determine which activities were considered desirable and to identify which other health care providers should be involved.

Results According to the focus group participants, patient education activities should be directed primarily at stimulating adherence to dosage regimen, increasing awareness of side effects and improving the correct technical use of glucose meters. Activities directed at lifestyle advice seemed less desirable. Structural co-operation with other health care staff was desirable.

Study/authors Dixon N, Hall J, Knowles D & Sanders E. *Pharm J* (2000) **265**: R21.

Can a community pharmacy influence the control of disease in people with diabetes through the use of a local quality control scheme? **B2 UK**

Study design and participants Controlled trial of a pharmacy led programme. 130 patients with diabetes participated. Patients were recruited from the PMRs of one community pharmacy and allocated to 'quality control' (QC) or 'no quality control' (NQC) groups.

Interventions 'Quality control' involved additional information for patients and validation of their blood glucose measurements by comparison with pharmacist-conducted and laboratory conducted tests with feedback. Patients were interviewed at baseline then three-

monthly during the 1 year study. The patients were asked to test their blood glucose as they would at home. The pharmacist also measured blood glucose and a third sample was sent to the local pathology laboratory for HbA1c testing. A score card was completed by the pharmacist for proficiency in blood glucose testing technique and knowledge of diabetes. All patients were given an information leaflet about diabetes, a new set of instructions for their meter and a diary to record their results.

Outcome measures HBA1c levels in QC and NQC patients. Scores for blood glucose testing technique.

Results 58 QC and 72 NQC patients completed the study. All QC subgroups showed smaller increases in HBA1c than non-QC patients. Average scores for technique improved in both groups, with no difference between groups.

IMMUNISATION

Study/authors Weitzel KW & Goode JVR. *J Am Pharm Assoc* (2000) **40**: 252–6.

Implementation of a pharmacy-based immunisation programme in a supermarket chain. **B3 US**

Study design and participants Observational study of pharmacy based immunisation provision. 19 supermarket pharmacies in Virginia, USA took part. Pharmacies used private consultation rooms where available, or the most private section of the patient waiting area. Pharmacists also administered vaccines at off-site locations. Pharmacists completed the American Pharmaceutical Association's Pharmacy-based Immunisation Delivery Certificate programme. Follow-up injection technique review and practice sessions were included. All pharmacists were required to be certified in cardio-pulmonary resuscitation and the use of injectable epinephrine and diphenhydramine in anaphylactic reactions.

Interventions Influenza and pneumococcal vaccination offered on a walk-in basis or at four-hour clinics held on at least three days a week. Vaccination protocol developed jointly with physicians. Additional pharmacist cover was obtained to cover clinic sessions. Walk-in immunisations were dealt with by treating each request as a 'prescription' with pre-preparation done by technician staff. The patient's doctor was informed by letter that the immunisation had been given.

Outcome measures Numbers of influenza and pneumococcal vaccines administered in a 4-month period in 1998–9 and 1999–2000.

Results 5137 influenza and 613 pneumococcal vaccinations were administered by pharmacists during the study period in 1998–9. Over the same period on 1999–2000 the figures were 18,000 and 1200 respectively.

Study/authors Grabenstein JD, Guess HA & Hartzema AG. *J Am Pharm Assoc* (2001) **41**: 46–52.

People vaccinated by pharmacists: descriptive epidemiology. **C1 US**

Study design and participants Questionnaire survey distributed by pharmacists to people vaccinated to determine user views.

Outcome measures Demographic data on people

vaccinated; opinions about different vaccine providers.

Results Mean age was 54 years; 25% were 65 or older. Almost 50% were taking prescribed medicines long-term and 84% of people came to the pharmacy intending to be vaccinated. Many respondents preferred the pharmacy to other vaccine providers, based on access, convenience, trust and/or cost.

Study/authors Ernst ME, Bergus GR & Sorofman BA. *J Am Pharm Assoc* (2001) **41**: 53–9.

Patients' acceptance of traditional and non-traditional immunisation providers. **C1 US**

Study design and participants Postal questionnaire distributed to patients via a stratified sample of private family physician clinics, family medicine residency training programmes, and provider / non-provider community pharmacists.

Outcome measures Sources of past immunisations, access to immunisations, importance of immunisation products and future

use of different health care providers and settings for immunisations.

Results Response rate was 67% (420). Respondents frequently received immunisations at sites other than doctors' offices. Younger patients and those living in small towns were more likely to report receiving an immunisation from a non-physician. Patients recruited in immunising pharmacies were more likely to report previous immunisation from a pharmacist, most often for influenza. There was greater support for non-physician immunisation for adult than for paediatric immunisations.

Study/authors Grabenstein JD. *Vaccine* (1998) **16**: 1705–10.

Pharmacists as vaccine advocates: roles in community pharmacies, nursing homes and hospitals. **D1 US**

Study design and participants Review paper.

Interventions Pharmacists are authorised to administer vaccines in 25 states. More than 1000

pharmacists were trained to administer vaccines in 1997.

Results Between 50 and 94% of people who receive a pharmacist's recommendation to be immunised accept the recommendation. Over five million doses of influenza vaccine per year are administered in pharmacies. Consultant pharmacists can recommend vaccines in nursing homes during monthly medication reviews.

Study/authors Madhavan SS, Rosenbluth SA, Amonkar M, Borker RD & Richards T. *J Am Pharm Assoc* (2001) **41**: 32–45.

Pharmacists and immunisations: a national survey. **B3 US**

Study design and participants

Questionnaire survey of 5342 pharmacists from chain, independent, mass merchandiser/grocery, primary care clinic and HMO settings.

Outcome measures Current involvement in immunisation, willingness to become involved, perceived barriers, participation in educational

events on immunisation, perceptions of patients' interest in this service.

Results Response rate was 25.3% after three mailings. Only 53.1% of respondents knew correctly whether their state allowed pharmacists to administer immunisations. 2.2% and 0.9% of respondents reported involvement in administration of adult and paediatric immunisations, respectively. Pharmacists who had attended educational sessions about immunisation were more willing to provide such services and perceived fewer barriers to involvement.

Study/authors Davidse W & Perenboom RJ. *Ned Tijdschr Geneesk* (1995) **139**: 2149–52.

Increase of degree of vaccination against influenza in at-risk patients by directed primary care invitation. **B3 Netherlands**

Study design and participants Case-finding study with intervention to increase patient attendance for influenza vaccination.

Intervention study involving 27 community pharmacies and 42 general practitioner offices in the Netherlands covering 133,000 patients.

Interventions Medication data from community

pharmacists' records were used to identify 'at risk' patients. GPs then selected patients to be invited to attend for 'flu vaccination.

Outcome measures Percentage of 'at risk' patients vaccinated against 'flu in 1993, compared with 1992.

Results 15,000 patients were selected by the GPs and invited to attend for vaccination in 1993. Final coverage was 75.5%, a 56% increase from 1992. In comparison, the increase was 8% for the Netherlands as a whole and 18% for a group of comparable but non-participating GPs.

HEAD LICE

Study/authors Adie B & Anderson C. *Pharm J* (1998) **261**: R19.

Investigation into the role of community pharmacists in the management of head lice infections. **B3 UK**

Study design and participants Telephone interviews using structured questionnaire with stratified random sample of community pharmacists.

Outcome measures Pharmacists' self-reports of advice given in response to requests about head lice and advice offered with sale of treatments.

Results 34 pharmacists agreed to be interviewed. Half said they had checked hair in the pharmacy, mostly when asked to do so. A further 12 said they would be willing to check

hair if asked. Most pharmacists reported that treatment sales were mainly to third parties, with only five saying that the patient was usually present. 24 pharmacists usually recommended the same product and in 16 cases this was the health authority's treatment of choice. Locum pharmacists were less likely to be aware of the health authority

recommendation. 11 pharmacists said they reinforced the product advice to leave on the hair for 12 hours. None of the pharmacists recommended a routine repeat application after seven days. Only three said they would recommend 'wet combing' as treatment.

ORAL HEALTH

Study/authors McVeigh N & Kinirons MJ. *Int J Paed Dent* (1999) **9**: 31–5.

Pharmacists' knowledge and attitudes concerning sugar free medicines. **B3 UK**

Study design and participants Quantitative questionnaire survey of pharmacists practising in Greater Belfast, Northern Ireland.

Outcome measures Attitudes towards sugar in medicines and sugar-free preparations. Knowledge about sugar-free preparations.

Results Response rate 74% (52). Overall 25% reported receiving formal education about the effects of sugar in medicines on oral health. 46% said that sugar in medication was 'definitely' an important cause of dental caries in children and 44% that it was a possible factor. Major factors cited to influence the provision of sugar-free medicines were parental requests, health promotion literature and media advertising.

Study/authors Gilbert L. *SADJ* (1998) **53**: 439–43.

The role of the community pharmacist as an oral health adviser – an exploratory study in South Africa. **B3 South Africa**

Study design and participants Survey of a random sample of community pharmacists in Johannesburg, South Africa.

Outcome measures Incidence and nature of

dental enquiries; knowledge of preventive measures; willingness to engage in promotion of oral health.

Results Community pharmacists receive and handle substantial numbers and range of inquiries and were positive about this role. There was little evidence of networking with dentists or other health professionals. The pharmacists had received little education on oral health.

Study/authors Maguire A, Evans DJ, Rugg-Gunn AJ & Butler TJ. *Community Den Health* (1999) **16**: 138–44.

Evaluation of a sugar-free medicines campaign in north-east England: quantitative analysis of medicines use. **B2 UK**

Study design and participants A 'before and after' study of the effect of providing information on recommendations for sugar-free medicines. GPs and community pharmacies in two test and two control districts in England.

Interventions 12-month campaign using information packs designed to increase the proportion of sugar-free medicines dispensed for paediatric use.

Outcome measures Numbers of prescriptions and OTC medicines sales of specified medicines.

Results There was a significant increase in the prescribing and dispensing of sugar-free medicines. There was a small increase in sales of sugar-free OTC medicines.

MULTI-TOPIC HEALTH PROMOTION PROGRAMMES

Study/authors Coggans N, McKellar S, Bryson S, Parr RM & Grant E. *Pharm J* (2001) **266**: 514–8.

Evaluation of health promotion development in Greater Glasgow Health Board (GGHB) community pharmacists. **C1 UK**

Study design and participants Quantitative survey of pharmacy customers. A structured questionnaire was distributed to customers of 32 community pharmacies participating in the GGHB health promotion scheme. 410 respondents before, and 410 of these after pharmacists' training, recruited through the pharmacies.

Interventions Five pharmacy health promotion facilitators worked with GGHB Health Promotion department to develop a training programme, a health promotion resource manual and to provide support for specific campaigns. Pharmacists participated in a 2-day course covering health promotion topics relating to national priorities plus communication skills.

Outcome measures Percentage of customers reporting learning from pharmacist, assistant and health education leaflets. Percentage reporting that the pharmacist asked general health questions when prescription was dispensed or OTC medicines were purchased.

Results Compared with baseline data there was an increase in customers reporting they learned something useful from pharmacists, assistants and leaflets. More customers reported greater discussion by pharmacists of general health when collecting prescription medicines and purchasing OTC medicines. Fewer customers said at follow-up that the pharmacist understood the difficulties of making lifestyle changes. Post-study, pharmacists self-reported increased skills and knowledge of health promotion and significantly more contacts with health promotion facilitators and the local health promotion department. More pharmacists gave valid responses to a health promotion scenario.

Study/authors Blenkinsopp A, Tann J, Allen J & Platts A. *Health Ed J* (2002) **61**: 52–69.

Evaluation of a community pharmacy health promotion scheme: User and provider perspectives. **B3 UK**

Study design and participants Observational study. Client questionnaires (recording advice requested and received and demographic information); structured telephone interviews with 10 pharmacists who were participating in a health promotion scheme. Members of the project Board were interviewed.

Interventions Ten community pharmacies in one locality in England took part in a health

promotion scheme. The pharmacists provided advice in the form of brief (level 1) and extended (level 2, 20 minute) interventions.

Outcome measures Client uptake by health topic; client acceptability of the service; pharmacist and stakeholder views.

Results The number of level 1 and 2 interventions were lower than the project board expected, except for smoking cessation. Pharmacists had generally not used their PMRs to target people for advice. The 'stage of change' model was well received but was not perceived to be applicable for all topics. The feasibility of offering level 2 type interventions in the pharmacy was questioned.

Study/authors Ghalamkari HH, Rees JE, Saltrese-Taylor A & Ramsden M. *Pharm J* (1997) **258**: 27–32.

Evaluation of a pilot health promotion project in pharmacies: (1) Quantifying the pharmacist's health promotion role. **B2 UK**

Study design and participants 14 CPs (from an invited cohort) were randomly allocated into test and control groups. A further control group who

had not been invited was also included. The test group took part in three days training.

Interventions Each pharmacist was required to log their health promotion activity over 8 months in smoking cessation, pregnancy, sun and skin protection, blood pressure monitoring, peak flow measurement and infestations.

Outcome measures To establish pharmacy health promotion activity in trained and untrained pharmacists.

Conclusions 2103 consultations were recorded. The test group had more although not a

statistically significantly greater number. The test group held the highest number of consultations lasting 6 minutes or more and the lowest lasting 1 minute or less.

Study/authors Thompson G, Robinson A & Walker R. *Pharm J* (1995)(Supp) R17

Evaluation of the involvement of the community pharmacist in health promotion. **B3 UK**

Study description and participants The objective was to determine the frequency and nature of community pharmacy involvement in health promotion in general and smoking cessation in particular. All 96 pharmacies in one locality were invited to take part in a six month project from September 1994 to March 1995. Selection criteria were then applied to the pharmacy premises including presence of a counselling area and evidence of a positive health promotion environment. Geographical spread was also taken into account.

Interventions Pharmacists attended a study day and were paid a monthly fee to participate. For 'No Smoking' day participating pharmacies were randomly assigned to receive locum support or no support and the availability of the smoking cessation service was advertised in the local press. Pharmacists recorded the health promotion interventions that they made.

Outcome measures Numbers of recording forms submitted by each pharmacy with self-reporting of activity and health promotion topics discussed with pharmacy users. Each form recorded one health promotion intervention, classified into one of thirteen health promotion topics.

Results Twenty pharmacies were selected to participate from 31 that applied. The mean number of forms submitted per pharmacy was 126 (range 46-328). The submission of forms varied by month, with the lowest in November-December and the highest in February-March. The most commonly-reported interventions were smoking cessation (23%), healthy eating (7%), pregnancy testing (7%) and oral health (6%). Three quarters of interventions took five minutes or less. A product sale was involved in 20%, with the remaining 203 calculated to provide 163 hours of advice. In the week of 'No smoking' day advice on smoking cessation was provided on more than twice as many occasions by those pharmacies with locum cover (65) than those who did not (30).

FACTORS AFFECTING THE EFFECTIVENESS OF COMMUNITY PHARMACY-BASED ACTIVITIES TO IMPROVE HEALTH

Facilitators – see 'Multi-topic Health Promotion Programmes'

Training

Study/authors Anderson C. *J Soc Admin Pharm* (1995) **12**: 115-124.

A controlled study of the efficacy of a health promotion training scheme on pharmacists' advice about smoking cessation. **B2 UK**

Study design and participants RCT to test the effect of training on smoking cessation advice in intervention pharmacies with 'usual care'. Covert visits were made to a random sample of 20 out of 42

pharmacies participating in the Barnet High Street Health Scheme and 20 randomly sampled control pharmacies from a neighbouring health authority.

Interventions A 21-year-old mystery shopper, who was unaware that there were two groups of pharmacies, posed as a customer with diabetes who wished to give up smoking. The shopper asked for nicotine patches. The Barnet pharmacists had received training in communication skills,

health promotion skills, the use of leaflets and smoking cessation.

Outcome measures Outcome of the consultation. (Referral was the desirable outcome as the client was diabetic.) Duration of interview; questions asked by the pharmacist (checked against a *Pharmaceutical Journal* checklist); availability of NRT and information, busyness of pharmacy, willingness of pharmacist to help and the shopper's overall satisfaction with the consultation.

Results A statistically significantly greater number of Barnet pharmacists referred the shopper to the doctor. The Barnet pharmacists spent a significantly longer time with the shopper (mean Barnet time 5.3 min, SD 4.7; control 2.45, SD 1.3:

Mann–Whitney *U*-test $P < 0.02$). Barnet pharmacists were significantly more likely to ask about the first cigarette smoked each day, and whether there were concurrent diseases. In comparison the control pharmacists allowed little time for client questions. The Barnet pharmacists appeared to use leaflets more appropriately. The shopper was given more than one leaflet by over 75% of the control pharmacists, which was reported as confusing. The shopper was more satisfied with the Barnet pharmacists' consultations.

Conclusions Training in communication skills, health promotion skills, the use of leaflets and smoking cessation improved the quality of health promotion consultations.

Study/authors Anderson C & Alexander A. *Int J Pharm Pract* (1997) **5**: 185–91.

Wiltshire pharmacy health promotion training initiative: a telephone survey. **B3 UK**

Study design and participants A 'before and after' study of the effect of training in health promotion. Semi-structured telephone interviews were conducted with 40 pharmacists before, and at least 6 months after, attendance on a health promotion course in Wiltshire Health Authority

Interventions Seven days and 2-evening sessions

were spent on a training course giving an introduction to health promotion, communication skills, and specialist health topics.

Outcome measures Self-reported changes in pharmacists' knowledge, practice, and attitude.

Results The value of increased knowledge was recognised by participants, in particular when talking to patients and other health professionals. There was a change in attitude towards a more holistic view of health. Changes in practice were evident despite recognised constraints.

STAKEHOLDER VIEWS

Pharmacy users

Study/authors Ghalamkari H, Rees J & Saltrese-Taylor A. *Pharm J* (1997) **258**: 909–12.

Evaluation of a pilot health promotion project in pharmacies: (3) Clients' further opinions and actions taken after receiving health promotion advice. **B3 UK**

Study design and participants Quantitative survey of users views. 145 clients were surveyed 4 weeks after having received advice from a test group of pharmacies.

Interventions This research forms part of the

evaluation of the Somerset pharmacy health promotion scheme.

Outcome measures Whether clients had acted on the pharmacist's advice.

Results 105 clients responded (72% response rate). Over 90% agreed that the pharmacist had communicated the advice clearly, intelligibly and in a manner that allowed the client to talk and ask questions. Nearly 70% had followed the advice. Only 4% did not follow the advice in any way.

Study/authors Hamilton A. *JSAP* (1998) **15**: 42–49.

An evaluation of the extended role of the community pharmacist in rural areas of the West of Ireland. **B3 Ireland**

Study design and participants Quantitative survey of pharmacy users. Four comparable pharmacies were randomly selected to participate in a 4-week survey of a stratified sample of established pharmacy users. Particular reference to the pharmacists role in health education, advice, and promotion was made.

Results 112 (72%) of questionnaires were returned. 80% were aware that the pharmacy had a selection of health information leaflets. 12% were unaware that pharmacists were qualified to discuss health matters. 18% said the pharmacist was their first source of health information and 40% second (after GP), 3% said they would consult their pharmacist about diet and 19% had done so. 60% said they would consult their pharmacist about smoking cessation, 14% had done so. Users welcomed the introduction of diagnostic and screening tests.

Study/authors Bell HM, McElnay JC & Hughes CM. *J Soc Admin Pharm* (2000) **17**: 119–128.

Societal perspectives on the role of the community pharmacist and community-based pharmaceutical services. **B3 UK**

Study design and participants Cross-sectional survey of public attitudes towards pharmacy. Structured interviews with 1000 members of the general public.

Outcome measures To examine public perceptions of current activities and future roles of community pharmacists, including views on health promotion and health screening.

Results Participants were most supportive of health promotion both within the pharmacy (91.2%) and within the community (72.3%). Support for these activities was more common in younger users; 76.1% of <60 years supported the provision of health screening. The majority of them were unwilling to pay for these services but 56.8% and 55.8% were willing to pay for cholesterol testing and blood pressure monitoring respectively. Older respondents were more willing to pay for these services than younger ones. Almost 40% of those interviewed were willing to make an appointment with their pharmacist.

Study/authors Anderson C. *Int J Pharm Pract* (1998) **6**: 2–12.

Health promotion by community pharmacists: consumers' views. **C1 UK**

Study design and participants Quantitative survey of pharmacy users. Interviews using structured questionnaire with consumers in six pharmacies. Conducted as part of the evaluation of the Barnet High Street Health Scheme.

Outcome measures Respondents' preferred source of advice on 'staying healthy'. Percentage of respondents agreeing it was the pharmacist's

'usual job' to give such advice. Extent to which leaflets had been noticed, taken away and read.

Results 592 interviews were conducted, spread equally across the six pharmacies. The GP was the preferred source of advice on staying healthy for 77% of respondents, the pharmacist 8%. 40% agreed it was the pharmacist's usual job to give general health advice, 19% did not and 41% did not know. Prescription customers were more likely to agree it was the pharmacist's job to give health advice. While 92% had noticed leaflets, 30% had taken one or more away to read, most of whom said they had found them useful.

Study/authors Dominguez A, Reigidor E & Gallardo C. *Aten Farm* (2000) **2**: 138–143.

Health information requests in pharmacy. (Spanish paper, English abstract.) **C1 Spain**

Study design and participants Quantitative survey of pharmacy users. Users of community pharmacies in Madrid who requested information from the pharmacist during the study period.

Outcome measures Demography of pharmacy users; types of information sought.

Results 1024 people participated, of whom 70% were women. Those aged 25–44 and 45–65 years were more likely to request information. 20.8%

asked about characteristics of drugs that they had purchased, 11.8% about cosmetics and dermatology, 7.2% about interpretation of test results and 5.5% diet and nutrition.

Study/authors Jesson J, Pocock R, Jepson M & Kendall H. *JSAP* (1994) **11**: 29–36.

Consumer readership and views on pharmacy health education literature. A market research survey. **B3 UK**

Study design and participants Quantitative survey of pharmacy users. A sample of 427 high users of pharmacies and 358 of the general population took part in a large consumer study about pharmacy services.

Outcome measures Percentage noticing health education leaflets; percentage of those who had taken a leaflet and found it useful.

Results Two-thirds of high users and nearly half the general population had noticed leaflets and 37% and 23% respectively had read them. 13 found them very useful. Percentage uptake increased slightly with educational attainment. Only 20% of retired people had taken leaflets.

Pharmacists

Study/authors Anderson C. *J Soc Admin Pharm* (1998) **15**: 10–22.

Health promotion by community pharmacists: perceptions, realities and constraints. **B3 UK**

Study design and participants Qualitative study. Interviews with six community pharmacist participants in the Barnet High Street Health Scheme, conducted pre- and post-training.

Outcome measures Effects of the scheme on participants' practice; reasons why specific changes had been made; attitudes to and constraints on the health promotion role.

Results Pharmacists gave broader definitions of health after the training. Pharmacists reported that after the training they spent less time in the dispensary and more on proactively advising clients. However, they also reported that dispensing was a major constraint on their health promotion activity. Participants appeared to have been enabled to identify opportunities for health advice beyond those which were medicines-related. Needs of patients with asthma were a recurrent theme. There was little evidence of networking with other primary care team members.

Study/authors Moore S, Cairns C, Harding G & Craft M. *Health Ed J* (1995) **54**: 275–84.

Health promotion in the high street: a study of community pharmacy. **B3 UK**

Study design and participants Structured interviews in 1993 with a stratified sample of community pharmacists in south London.

Outcome measures Present health promotion activities and attitudes to health promotion.

Results The number of times advice was given was estimated to be 1400 per week for the sample. It was 2.5 times more likely to be reactive than proactive. In general pharmacists felt isolated and excluded from formal activity. Few felt they had enough support from the local health promotion unit. There was evidence to suggest that pharmacists are an underutilised resource for health promotion.

Study/authors Keene I, Cervetto S & Wilson A. *Pharm J* (1994) **252**: 408–9.

Health promotion in the community pharmacy. **B3 UK**

Study design and participants Cross-sectional study of pharmacists' participation in health promotion activities. 48 structured interviews with community pharmacists in West Glamorgan.

Outcome measures Current and future participation in defined health promotion activities – leaflet display, selling relevant goods, attitudes towards training and accreditation, payment and monitoring, advising, and counselling.

Results Generally pharmacists saw their future activities as evenly spread across the range of defined methods. The majority indicated they needed further training and payment. More than three-quarters thought health promotion was beneficial. Only just over a third thought the constraints of lack of training, time and space for consultation were an issue.

Study/authors Benson M, Cribb A. *Int J Pharm Pract* (1995) **3**: 74–7.

In their own words: community pharmacists and their health education role. **B3 UK**

Study design and participants Qualitative study. In depth interviews with 10 selected community pharmacists who had been involved with training programmes.

Outcome measures Pharmacists' perceptions of the nature of their health education role, the

practicalities of implementing it and the obstacles that needed to be overcome.

Results The pharmacists were clear about their health education role as it related to prescribed medicines. However, they were uncertain about other aspects of their role. The authors conclude these uncertainties are related to pharmacists' education in a biomedical and functionalist paradigm, together with ethical concerns about interference in the lifestyles of patients.

Study/authors Mullan E, Fry A & Tudor-Smith C. *Health Educ J* (1999) **58**: 410–417.

Perspectives, practices and the Pharmacy Healthcare Scheme: a small-scale investigation of use of health education leaflets among pharmacists in Wales. **B3 UK**

Study design and participants Cross-sectional national survey of pharmacists. Postal questionnaire to random sample of pharmacists in Wales.

Outcome measures Percentage of respondents using leaflets from different sources; perceived quality and utility of leaflets; level of training or guidance received in using leaflets.

Results Response rate was 46% (109) of whom 83

reported using Pharmacy Healthcare Scheme (PHS) leaflets, 45 leaflets provided by their health promotion units and 64 commercial leaflets. Additional leaflets had been ordered from PHS by 19 (23%) of users. PHS materials scored higher for perceived quality than those supplied by health promotion units. Leaflets from commercial sources were perceived to fill gaps on topics not covered by PHS or health promotion units, be quickly obtainable and in plentiful supply. Respondents were relatively uncritical of the leaflets they received. Handing out leaflets with advice was reported by 97.7%, with leaving in a public place by 83.5%. 88% of respondents reported they had never received training or guidelines on using leaflets.

Study/authors O'Loughlin J, Masson P, Dery V & Fagnan D. *Prevent Med* (1999) **28**: 324–31.

The role of community pharmacists in health education and disease management: a survey of their needs in relation to cardiovascular disease.

B3 Canada

Study design and participants Cross-sectional survey of pharmacists. Mailed questionnaire survey with telephone follow-up. Random sample of 597 community pharmacists.

Outcome measures Frequency of respondents' engagement in health education and disease prevention activities relating to CHD in the past year. Specifically, proactive pharmacist-initiated activities relating to: hypertension, raised lipids, diabetes, physical activity, diet, smoking, obesity, or stress. Community pharmacists' level of interest in developing these activities. Barriers to doing so and how these might be addressed.

Results Response rate 76.2%. Few pharmacists routinely practised prevention although 90% perceived prevention as important. Pharmacy owners, those working in smaller pharmacies, those working in pharmacies with a history of prevention activities and those reporting moderate

to high job satisfaction were more likely to report routine prevention activities. Lack of time, skills and equipment were the main stated barriers. Interest was highest in screening for hypertension, raised lipids and diabetes and in methods to monitor compliance with medication for CHD.

Study/authors Paluck EC, Stratton TP & Eni GO. *Can J Public Health* (1994) **85**: 389–92.

Community pharmacists' participation in health education and disease prevention activities.

B3 Canada

Study design and participants Cross-sectional survey of pharmacists. Questionnaire survey of 625 community pharmacists in British Columbia. Systematic stratified sample.

Outcome measures Extent of participation in 33

specified health education and disease prevention activities.

Results Response rate was 83.6%. Lowest reported participation was reported for: speaking to community groups on health-related matters, participating in disease screening programmes, querying clients on their smoking status and occupational stress, and counselling clients on AIDS prevention.

External stakeholders

Study/authors Ursell VC, Marriott JF & Wilson KA. *Pharm J* (1999) **263**: R53.

Community pharmacy involvement in public health provision: current perceptions and future directions. **B3 UK**

Study design and participants Attitudinal survey. Postal questionnaire to random sample of 96 community pharmacists and 26 'pharmaceutical policy makers' (pharmaceutical advisers and Directors of Public Health) in health authorities in the West Midlands.

Outcome measures Percentage of respondents rating the current role of the pharmacist in public health provision as 'very important'.

Results Response rates were 44% (community pharmacists), 62% (Directors of Public Health) and 69% (pharmaceutical advisers). More community pharmacists (50%) perceived the current role of the pharmacist in public health provision as 'very important' than policy makers (11%). More policy makers identified financial issues as the most important constraint on this aspect of the pharmacist's role (41%) than did community pharmacists (14%). The latter identified lack of time as the most important constraint (41%). Pharmacist inclusion in primary care groups was considered 'essential' in developing pharmacists' involvement in public health by 27% of policy makers and 79% of community pharmacists.

Study/authors Anderson C. *Health Ed J* (1996) **55**: 194–202.

Community pharmacy health promotion activity in England: a survey of policy and practice. **B3 UK**

Study design and participants National cross sectional survey of pharmacy health promotion initiatives. Telephone survey of English Family Health Service Authority pharmaceutical advisers.

Outcome measures Percentage of areas reporting pharmacy based health promotion activities. Perceived barriers to these activities.

Results Response rate was 86%. Overall 57% reported health promotion activity, a third none. A variety of activities were found to be taking place. The main barriers were reported to be financial; the time the pharmaceutical adviser had for community pharmacy development, as opposed to prescribing advice. The relationship of the Family Health Service Authority with the local health promotion unit and the local pharmaceutical committee also had a bearing. 40 respondents (51%) indicated that they had been influenced by the Barnet High Street Health Scheme.

What role, if any, should pharmacies play in improving the health and well-being of the general public? Situated, as they often are, at the heart of their communities, they are in a unique position to provide help and advice on health matters to a complete cross-section of society at the same time as dispensing medicines. But is there any evidence that customers would actually benefit from such advice?

Bringing together, summarising and categorising research papers on such diverse topics as stopping smoking, lipid management and drug misuse, this report provides strong evidence that pharmacies can indeed make a positive contribution to improving the health of the nation – a finding that supports the recommendation of the recent Health Committee Inquiry into Public Health that ‘community pharmacists play a more active role in public health’.

By adopting some of the activities described, pharmacies across the country will not only be aiding the treatment of disease they will be improving the health of their customers at the same time. This report will make interesting reading for all those concerned with meeting health improvement targets, planning future services and integrating community pharmacy activity with that of the wider NHS.

