

Report of Health Promotion and Screening Activities by Community Pharmacists 2005

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Abstract

Self care and disease prevention are important pieces of the health system of the future. Emergence of self-management programs for consumers and the consequent role of health professionals will shape future functions of health care providers. Consumers visit community pharmacies in Australia 78 million times per year. Pharmacists are ideally situated to encourage the adoption and maintenance of healthy lifestyle behaviours, improve the detection and management of various diseases and make a significant impact on current health care practices and expenditure in Australia.

Currently some community pharmacists do undertake health promotion and screening activities, but these are generally limited in nature and details of the specific activities undertaken are not often recorded. Unfortunately, the pharmacy profession as a whole does not document or publish its actual activities to enable the public, other health professionals and governments to appreciate the extent of pharmacy practice in Australia. In order to increase collaboration with health professionals over and above that which exists already requires a united approach from the pharmacy profession before remuneration for existing activities is supported by consumers and other stakeholders.

A broad range of health promotion actions including screening activities are areas in which the pharmacy profession can contribute to the current National Health Priority Areas and play a vital role as accessible health professionals in improving Australia's health. Individual practice programmes and trials by innovative practitioners should be highlighted to the profession, public and government to demonstrate alternatives to current practice.

A review of published studies describing community pharmacy-based health promotion and screening programs and activities has been conducted. Medline, Embase, International Pharmaceutical Abstracts and the Cochrane Library were searched electronically for published literature on this extensive topic. Manual searching was also conducted, including the canvassing of Australian community pharmacists to report on their own health promotion activities. Peak bodies representing the conditions described by the National Health Priority Areas were also surveyed to gauge their interpretations of the role of the pharmacy

profession and in particular community pharmacists, in health promotion and screening activities that are relevant to their organisations.

Evidence of health promotion and screening activities, collaboration and successful activities carried out in community pharmacies was sourced. These resources have been used to identify opportunities for the pharmacy profession in Australia to adopt or expand.

A small proportion of the sourced literature was suitable for systematic review. The main disease states, within the Australian National Health Priority Areas, that have been studied in relation to health promotion in community pharmacy are cardiovascular disease, asthma, diabetes and osteoporosis. In general, the quality of these studies is poor, with only a small amount of high quality randomised controlled trials evaluating the effect of community pharmacy's involvement in health promotion. Since 2001, only a few studies have rigorously evaluated community pharmacy-based involvement in health promotion. This is clearly an area of pharmacy practice that should be developed and investigated further. Greater cooperation between pharmacy organisations and the peak bodies associated with the National Health Priority Areas would facilitate this.

Introduction & Background

Pharmacists are often cited as one of the most accessible groups of health professionals. They have a tradition of providing health promotion and screening services within their normal daily practice but evidence of the effectiveness of these practices is lacking in the literature. Health promotion and its associated activities is a concept that should underpin all facets of the pharmacist's role but the general profession appears to poorly understand the definitions, theories and processes available to support health promotion in practice. Anecdotally, health promotion is conducted by some community pharmacists in the form of health screening, public lectures and disease management advice but there is very little published evidence of these activities or their value. If these activities are not documented they can not be used as evidence of practice, and therefore cannot be used to protect and promote the pharmacy profession.

It is said often both anecdotally and in the literature, that both the knowledge and skills of the profession are underutilised¹. Until the conflicting definitions of pharmacy practice—the product-centred approach of dispensing, medication and sales activities; and the patient-centred care approach of using information and advice—are meshed together, confusion about the role of the pharmacist will continue to exist.

The practice of pharmacy is changing and it will be shown from examples provided by reports from the United Kingdom and Europe^{2, 3} and Australia⁴ that innovators of practice change are using health promotion practice as one basis for this change. These key figures in the pharmacy profession, as shown by Tann and Blenkinsopp⁵, are using health promotion practice and medication management to change the profession from one that is product-centred to a service model with high cognitive knowledge and skill input. The current climate is forcing the profession to justify these levels of knowledge and skills gained in obtaining and maintaining competence to practice. The profession is moving away from manual dispensing tasks towards the opportunities that health promotion, medication management and other innovative practices can offer. Consumers are questioning and becoming the experts⁶ and the broad scope of health promotion and screening activities thus allows consumers the choice to self-manage their health and the profession, scope to extend its role to one that can be sustained in the future.

The changing nature of consumers⁶ will impact on the profession's delivery of services, a role for which the profession must be ready. The extent of the profession's contribution in health promotion and screening activities may be recognised but the long-term benefit to patient populations may not be evident until pharmacy practice changes to include these activities as core business, thus allowing comprehensive data analysis over time.

Community Pharmacy in Australia

Structure

Pharmacists are in short supply and will continue to be in demand past 2010⁷. If health promotion is to be considered as a standard part of pharmacy practice, a pharmacist shortage has implications for any proposed change to practice, particularly in rural areas, where there is more demand on the pharmacy workforce. Health promotion should be a standard part of pharmacy practice, not just an additional activity. To examine the extent of participation in health promotion practice by pharmacists and the context in which this could be provided, it is necessary to have some understanding of the current and future issues affecting the pharmacy workforce, both in Australia and overseas.

Activities

Community pharmacists are involved in a number of activities but dispensing medication is the major component. Berbatis et al⁸ indicated that managers spend 75% of their time dispensing and 25% in patient care and counselling (mean 30.93 hours in the dispensary, 11.2 hours in patient care and counselling, 42.13 hours total per week). Consultants and other pharmacists appear to spend a slightly greater proportion of their time (e.g. 33% for consultants vs. 27% for managers) in patient care and counselling activities, but work less time overall (consultants: 18.8 hours, 9.3 hours, 28.1 hours; other pharmacists: 15.9 hours, 10.3 hours, 26.2 hours, respectively).

Pharmacists in the Berbatis et al. survey⁸ conducted 385 288 screening tests, which were anthropometric (body weight, height and waist circumference), blood cholesterol testing, blood pressure testing, bone density testing and pregnancy testing. Half these tests were for blood pressure screening, 20% for glucose testing and the other tests, such as weight measurement and osteoporosis screening, were conducted by less than 10% of the

respondents. This proportion is similar to the United States but both countries appear to conduct more tests than reported in Great Britain ⁸.

Payment of Activities

Pharmacists on the whole, do not charge for many health promotion and screening services⁸. One third of pharmacists charged for methadone and harm reduction services but only 6.3% charge for 'osteoporosis' services such as bone density testing. On the whole, only one quarter of the pharmacies surveyed offer enhanced pharmacy services. Berbatis et al⁸ also make the point that services offered do not line up with the Australian National Health Priority Areas in 2003-3. Only 8.7% of pharmacies have staff trained in weight reduction despite an obesity population percentage of 20% growing at 5% per annum. Only 1.6% charge for the service and a further 2.1% of pharmacies planned to introduce the service in 2003⁸.

Overview of Health Promotion

Health promotion is more than sticking up a poster in a window, but for too many pharmacists, this is seemingly the extent of their health promotion practice⁹. Despite the broad scope of practice and models of health promotion, the actual practice of health promotion in the pharmacy literature is often narrowly and poorly defined and consequently the profession only embraces some of its available facets.

The terms 'health promotion' and 'health education' are often used interchangeably in the pharmacy literature and professional practice standards¹⁰⁻¹². However, in 1998, the World Health Organisation¹³ separated these definitions. 'Health education' is now identified as learning to improve health literacy and life skills conducive to individual and community health¹³. In the past this term included the actions of advocacy and social or community mobilisation, however, these activities are now included as aspects of health promotion strategy. Therefore, the restricted definition of health education is now quite distinct from the definition of health promotion.

Usually, 'promotion' is described as encouragement of the popularity, sale, development or existence of something^{14, 15}. Health promotion, as 'promoting health', began in the 1970s

and was described by Catford¹⁶ as an approach that used the simple dictionary meanings of the words ‘health’ and ‘promotion’.

The use of aspects of health promotion theory and practice is often complementary to those other activities expected of, and delivered by, the profession. However, the role of the health professional, including the pharmacist, in health promotion, is usually one of education and advocacy¹⁶ or as an expert or specialist^{17, 18} but without the background instruction necessary to realise the full potential of a health promotion role in practice.

International Approach

In 1986, the *Ottawa Charter for Health Promotion*¹⁹ defined ‘health promotion’ as a process using features from the fields of anthropology, epidemiology, sociology, psychology and other behavioural sciences, public health, political science, education and communication²⁰. Health promotion can therefore be classified as a series of strategies to allow populations to be healthy and make healthy choices²⁰ using knowledge and procedures from a wide range of disciplines. It is defined as: ‘...the process of enabling people to increase control over, and to improve their health.’¹⁹.

In Great Britain, to formalise the definitions and dimensions of health promotion, the Royal Pharmaceutical Society in 1998 developed the document entitled ‘Guidance for the development of health promotion by community pharmacists’¹⁷. Through this document, the Royal Pharmaceutical Society identified two levels of health promotion practice:

Level 1 (Generalist)

- Focuses on the pharmacist encouraging healthy behaviour;
- There is an area in pharmacy for distribution of health promotion literature and information; and
- Pharmacists and staff use leaflets, simple health promotion advice when handing out prescriptions, making sales and advising about treating symptoms.

Examples of generalist health promotion by community pharmacists included taking part in local and national health promotion events, and giving evidence-based health promotion advice.

Level 2 (Specialist and Pro-active)

- ‘In addition to level 1, the pharmacist actively seeks opportunities to promote health. If appropriate, they will identify the stage of change a person is at for a particular behaviour and offer individualised advice and ongoing support’.¹⁷ The Stages of Change model was used for active advice on health promotion practice in pharmacy and no mention was made of the range of options for practice available under the *Ottawa Charter*.

Internationally, the profession has somewhat embraced the concept of ‘Pharmaceutical Care’, which is defined as medication management to improve or maintain a patient’s quality of life²¹. This concept is distinct from health promotion. ‘Pharmaceutical care’ is a process that aims to prevent or solve medicine- and health-related problems to thus achieve a positive clinical outcome using therapy plans with sufficient information to achieve these goals. Maguire²² challenged pharmacy to develop practice to include lifestyle needs and he argued that pharmacy does not understand health promotion and must move beyond the pharmaceutical care model.

Professional Practice Standards

The Pharmaceutical Society of Australia, *Professional Practice Standard* (25) are part of a comprehensive set of guidelines for community pharmacists, designed to ensure that professional pharmacy activities are performed to an agreed level. They also play an important part in the measurement of quality of service to consumers.

The context explained in the introduction to the Standards states:

‘It is now generally agreed the practice of pharmacy must be patient-centred and focus in improving health outcomes. The application of professional practice standards is a tangible means by which the profession can demonstrate its commitment to ensuring that health care services and products delivered to consumers are of reliable quality.’¹⁰

The first standard listed in the current *Professional Practice Standards* is that of Health Promotion. The *Health Promotion Standard* states that: ‘The pharmacist actively promotes

health in the community and provides information on the health conditions and their management.’¹⁰.

The scope of this standard narrowly defines health promotion as health education to ‘improve health or prevent ill health’. It also states that health promotion is the provision of information which ‘may occur either (i) independently from the supply of a medicine, or (ii) at the time of counselling a patient on a dispensed medicine or when recommending a non-prescription medicine’¹⁰.

Screening and monitoring activities conducted by pharmacists are also included in the *Professional Practice Standards*. The medical definition of screening refers to looking for signs of disease, such as cancer, in people who are symptom-free. On the other hand, monitoring refers to the act of observation, generally referring to monitoring of a condition after diagnosis²³. Community pharmacy has been engaged in screening activities for a number of years and early feasibility studies took place in the United States in the 1970s.²³⁻²⁵

The *Professional Practice Standards* state that screening is useful for ‘identifying individuals’ with diseases or risk factors for such diseases¹⁰. These same techniques can be also used for monitoring purposes. The three activities covered by the *Professional Practice Standards* (initially developed in 1996) are blood pressure, blood glucose and cholesterol testing in pharmacies. Each standard states that these activities are not for diagnostic purposes but for those who may have ‘unrecognised disease or risk factors and may therefore benefit from early medical intervention’,¹⁰ and thus may be interpreted as a form of health promotion and secondary prevention of disease.

Trained staff, calibrated equipment, patient consent and privacy are required for pharmacists to comply with this standard and offer this service correctly within their pharmacies. The implications and explanation of the measurement should be given to the patient and the information sent to their medical practitioner if permission is given. It is also recommended all health professionals in the local area be made aware of these services offered by the pharmacy and the conditions under which they are conducted.

Competency Standards for Pharmacists in Australia 2003

The Pharmaceutical Society of Australia *Competency Standards for Pharmacists in Australia 2003* defines health promotion as: ‘... a mediating strategy between people and their environments, combining personal choice with social responsibility for health to create a healthier future.’²⁶. The functional areas in this document are all associated with a general area of responsibility for practising pharmacists. Health promotion practice is encompassed within Functional Area 6.

Functional Area 6: Provide primary health care. Within this functional area the more traditional role of pharmacists is described as one of ‘promoting good health in the community’. This is achieved by participating in public health campaigns and by providing primary health care, including health and lifestyle advice. Information and advice when over-the-counter medicines or devices are selected by the customer or recommended by the pharmacist is also part of the service provided within this functional area. Advisable performance criteria include communication skills and maintenance of appropriate inter-professional networks essential for delivery of primary health care and health promotion services. In the element on provision of information and participation in public health strategies, supplementary performance criteria include public health education and awareness-raising campaigns, screening, and identification of ‘health promotion information needs of the community’. The elements encourage the pharmacist to deliver information on disease and early detection to community groups and promote the role of the pharmacist in local health promotion activities.

Theories of Health Promotion

Theories and frameworks underpinning the concept of health promotion range from those with a health, social, marketing or an administrative base. ‘True’ and successful health promotion uses a combination of theories. This eclectic mix of theories will be examined to gain an understanding of the myriad available that can be used to understand health promotion and the scope of its practice. An understanding of health promotion theory and models will enable the pharmacy profession today to use these principles to expand the current product focused practice into the cognitive focused practice of the future. It will then also enable pharmacists to understand how these theories influence their current practice and foster, augment and support innovative practice change for betterment of the profession as a whole.

In *Theory in a Nutshell: A practitioner's guide to commonly used theories in health promotion*²⁷, *Health Promotion Strategies and Models*²⁸ and *Health Promotion for Pharmacists*¹⁷, an analysis of many health promotion theories is provided. Using the grouping devised and cited in Nutbeam²⁷ the theories are grouped as follows:

Health Behaviour and Health Behaviour Change

Health Belief Model (Rosenstock 1974); *Theory of Reasoned Action and Planned Behaviour* (Fishbein & Ajzen 1975); *Protection-Motivation Theory* (Rogers 1975); *the Theory of Trying* (Bagozzi & Warshaw 1975); *Social-Learning Theory Model* (Bandura 1977); *Transtheoretical Approach/Stages of Change* (Prochaska & DiClemente 1982); and *the Empowerment Model* (Naidoo & Wills 1994).

Most of these models are based on attitudinal change and a need to change which will lead to improved health outcomes. Of all the models above, Prochaska & DiClement's model is the most widely used in pharmacy practice. In community pharmacies, pharmacists and assistants are usually trying to modify behaviour of their customers. This model, by using a cycle, acknowledges that people can change behaviour but often relapse into former behaviour patterns. The cycle consists of people moving in a continual loop, from those not ready to change, through contemplating, preparing, acting, maintaining and relapsing. People can move through this cycle several times or enter or leave at any point. Usually several attempts are made by individuals before any definitive change in behaviour is achieved¹⁷.

These models of health and health behaviour focus on the importance of the individual's knowledge and beliefs of health. The influences of self-efficacy, social norms and social influences are also acknowledged. People are in different 'stages of change' at any one time. All of these factors, including social and environmental conditions, affect individuals considering an alteration in behaviour. However, there are other models of health promotion to explain changes in health status in communities to complement the above approaches.

Community Change and Community Action for Health

- *Community mobilisation* (Rothwell 1987) and *Diffusion of Innovation Theory* (Rogers 1983).

Diffusion of ideas and practices allows the community to act collectively, thus overcoming some social, economic and environment determinants of health. Effective change agents (who can be members of the pharmacy profession) and the capacity to act collectively with others, both within the community and from outside, are necessary for those wishing to achieve change in community-identified health issues. Other strategies from outside the health field have been identified as necessary to realise positive health changes.

Communication Strategies to Promote Health

- *Communication Change Model (McGuire 1989) and Social Marketing Model (Kotler et al. 1989).*

Marketing strategies have significant value in health promotion activities. Matching the source, message, medium and receiver and allowing different methods of communication to be used help obtain a realistic defined outcome. Health promotion activities are more successful using a variety of approaches and the usefulness of these models cannot be underestimated. However, when health promotion projects are being conducted in a community yet another layer of organisational practice needs to be considered to achieve a change in health status.

Organisational Change and Health-Supportive Organisational Practices

- *Organisational Change (Goodman, Steckler & Kegler 1997) and Intersectoral Action (Harris, Wise & Hawe 1998).*

An organisation's core business can determine the effectiveness of health promotion programmes. Working with all levels within an organisation and supporting those involved is necessary for success and potential long-term maintenance. The influence of individuals, management and other organisations is a crucial factor to consider for the success of any activity. Health promotion strategies that use a holistic approach must incorporate the factors identified within these models to be effective. A yet higher level of influence, one of government and the media, also exists which impacts on health promotion within our communities. The following model exemplifies this area of health promotion.

Development and Implementation of Healthy Public Policy

- *Ecological Framework (Milio 1987).*

Health promotion is a combination of health and social science and not just a medical science. The theories described in this section underpin all health promotion programmes. Successful multi-level interventions use a number of these models and are more powerful than single-track programmes. The influence of outside players in health promotion activities must be considered for the sustainability of any change. Catford¹⁶ described how health professionals could contribute by developing their skills in educational and health advocacy, working outwards and nurturing and enabling health promotion to occur. However, not all individual practitioners can operate at all levels of health promotion practice²⁷ as they do not have the position, capacity or knowledge of those factors influencing the environment. However, to achieve maximum benefit, practitioners must have an understanding of the influencing issues as demonstrated by these models.

In pharmacy practice the most common model of health promotion used to explain change in behaviour is the Transtheoretical Approach or Behaviour Change Model of Prochaska and DiClemente²⁹. This model is used because it fits neatly into the day-to-day practice within a community or hospital pharmacy. While this model can easily explain the process of smoking cessation or weight reduction programmes, where multiple attempts are common, the different models of health promotion available provide for a wider potential understanding and input by the pharmacy profession into the community; not just individual exchanges. Prerequisites for health and the many theories of communication, community action, organisational change and public policy all impact on a successful change by an individual or society. Pharmacists are seen as the experts encouraging change¹⁸, but a limited knowledge of the health promotion theory options may restrict their practice.

National Health Priorities Areas (NHPA) in Australia

The National Health Priority Areas (NHPA) were decided at the Australian Health Minister's Conference in 2002³⁰.

They currently are:

- **Asthma**
- **Cardiovascular health**
Coronary heart disease; stroke; heart failure; and peripheral vascular disease
- **Cancer control**
Lung cancer; melanoma; non-melanocytic skin cancers; cancer of the cervix; breast cancer; colorectal cancer; prostate cancer; and non-Hodgkin's lymphoma (NHL)
- **Diabetes mellitus**
Type 1 diabetes; Type 2 diabetes; and gestational diabetes
- **Injury prevention and control**
Prevention of falls in older people; falls in children; drowning and near drowning; and poisoning in children
- **Mental health**
Depression, and depression as a co-morbidity or complication of other NHPA
- **Arthritis and other musculoskeletal conditions**
Osteoarthritis, rheumatoid arthritis; and osteoporosis.³⁰

The identified risk factors associated with these priorities are physical inactivity, excess weight, poor diet and nutrition, tobacco smoking, alcohol misuse, low birth weight, high blood pressure and high blood cholesterol³⁰.

As a result of these decisions there are four national research priorities, in the area of health information that may be applied to all health priority areas and risk factors, to promote and maintain good health. These research priority areas are:

1. A healthy start to life: Counteracting the impact of genetic, social and environmental factors which predispose infants and children to ill health and reduce their wellbeing and life potential.

2. Ageing well, ageing productively: *Developing better social, medical and population health strategies to improve the mental and physical capacities of ageing people.*

3. Preventive healthcare: *New ethical, evidence-based strategies to promote health and prevent disease through the adoption of healthier lifestyles and diet, and the development of health-promoting products.*

4. Strengthening Australia's social and economic fabric: *Understanding and strengthening key elements of Australia's social and economic fabric to help families and individuals live healthy, productive and fulfilling lives.*

Source: DEST 2003³⁰.

The Commonwealth and all states in Australia signed the 'Memorandum of Understanding for a National Public Health Partnerships for Australia' in February 2003, to ensure consistency of health priority areas and encourage collaboration, planning, implementation, monitoring and reporting of activities³¹. Thus, the health priorities are the same for all of Australia.

Essentially, this review attempts to demonstrate the current activity of community pharmacists in the health promotion arena, specifically in relation to the NHPA, and identify future directions and potential areas for expansion of the community pharmacist's role.

Method

Systematic literature review

A systematic identification of articles describing community pharmacy-based health promotion activities was undertaken.

Due to the variable terms used to describe health promotion activities, and the change in the nomenclature over the years, multiple terms were used in each search query. The term ‘health promotion’ alone does not retrieve all published articles on health promotion related activities. Although the terms used do have specific definitions as determined by the World Health Organisation,^{13, 19} the terminology in the various articles is inconsistent. Hence, a range of expressions were incorporated into the search strategies. In addition, screening and monitoring articles were also included in this search strategy.

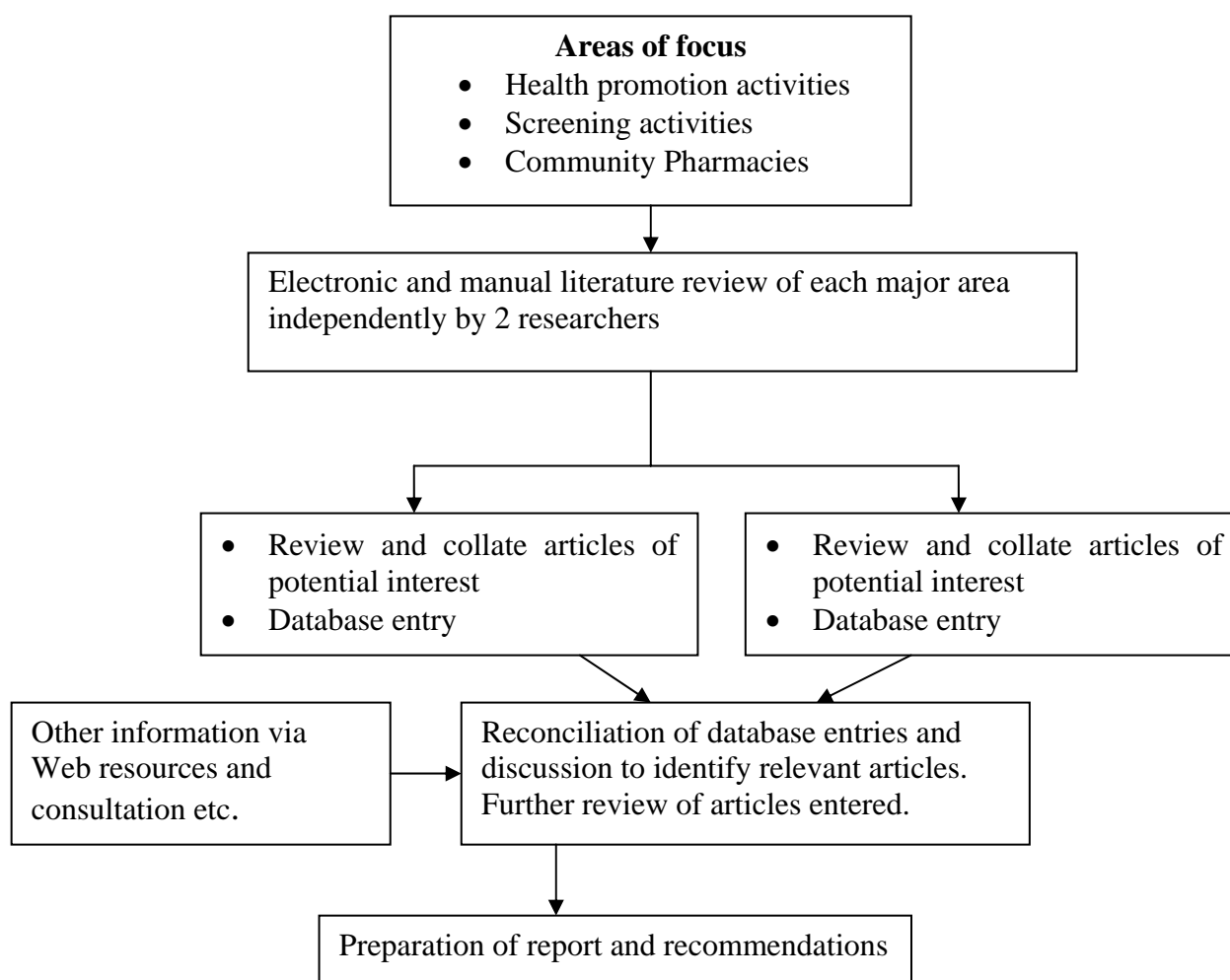


Figure 1: Search Strategy

Search procedure

The data bases and specific search terms are listed below. The search was limited to articles in English and published from 1990 - to the present day. The searches were undertaken in April/May 2005.

IPA (International Pharmaceutical Abstracts) from OVID

#	Search History	Results	Display
1	(pharmacy or pharmaceutical services or pharmacists or pharmacies).mp. [mp=title, subject heading word, registry word, abstract, trade name/generic name]	64378	Display
2	(monitoring physiologic or primary prevention or mass screening or disease management or health promotion or health education).mp. [mp=title, subject heading word, registry word, abstract, trade name/generic name]	3241	Display
3	1 and 2	1271	Display
4	limit 3 to (english language and human and yr=1990 - 2005)	293	

MEDLINE search terms and criteria

((Pharmacy[MH] OR Pharmaceutical Services[MH] OR Pharmacists[MH] OR Pharmacies[MH]) AND (Monitoring, Physiologic[MH] OR Primary Prevention[MH] OR Mass Screening[MH] OR Disease Management[MH] OR Health Promotion[MH] OR "health education"[mh]))

Total citations: 1407

EMBASE

<1988 to 2005 Week 14>

#	Search History	Results	Display
1	(pharmacy or pharmaceutical services or pharmacists or pharmacies).ab,ot,sh,hw,ti.	25905	Display
2	(monitoring physiologic or primary prevention or mass screening or disease management or health promotion or health education).ab,ot,sh,hw,ti.	49425	Display
3	1 and 2	840	Display
4	limit 3 to (human and english language and yr=1990 - 2005)	720	Display
5	from 4 keep 1-200	200	Display
6	from 4 keep 201-399	199	Display
7	from 4 keep 400-599	200	Display
8	from 4 keep 600-720	121	Display

Cochrane Library

Current Search History

ID	Search	Hits	Edit	Delete
#1	monitoring physiologic or primary prevention or mass screening or disease management or health promotion or health education in Keywords in all products	8917	edit	delete
#2	pharmacy or pharmaceutical services or pharmacists or pharmacies in Keywords in all products	617	edit	delete
#3	(#1 AND #2), from 1990 to 2005	84	edit	delete

In addition, many other references were obtained through personal communication using knowledge gained of examples of health promotion practice after working in this field.

It became evident that the papers obtained from the period 1990-2000 were the same as the papers reviewed by Anderson² et al. To eliminate the need to re-evaluate the same papers, the sourced papers were reduced to include only those in the date range 2001-2005.

It became evident that all manner of health promotion activities were included, such as communication and medication counselling. For the purposes of this report these activities are excluded although still in the literature review database, as they were deemed to be part of the pharmacist's role in medication dispensing and over-the counter sales of products. The report thus concentrates on health promotion lifestyle changes, prevention activities and screening activities conducted by pharmacists, activities over and above their expected role in Australian practice. Activities by community pharmacy practitioners were incorporated into this searching to provide comparisons and background information. Two postings to *AusPharmList* were used to canvass experiences of Australian community pharmacists, although the feedback from this source was minimal.

Manual searching of non-peer-reviewed journals such as the Royal Pharmaceutical Society of Great Britain publication, the *Pharmaceutical Journal* and the Pharmaceutical Society of Australia publication, *Australian Pharmacist* and relevant trade journals was also undertaken.

Systematic review

The following information was extracted from each of the published papers and entered into the database.

- Publication details
- Country
- Evidence grading
- Time frame
- Setting
- Participants
- Study design
- Intervention
- Outcome measures
- Key findings
- Limitations

A systematic review of relevant literature was completed by two independent reviewers according to the following procedures.

The reviewers attended Cochrane courses and had read publications by the NHMRC on reviewing the evidence in practice.³²⁻³⁴ The blinded reviewers classified each study according to the following NHMRC levels of evidence classification (Table 1). The definitions for each of these types of trials are defined by the NHMRC.^{32, 33}

Table 1 NHMRC levels of evidence classification

Level	Intervention
I	A systematic review of level II studies
II	A randomised controlled trial
II-1	A pseudo randomised controlled trial (i.e. alternate allocation or some other method)
III-2	A comparative study with concurrent controls: <ul style="list-style-type: none"> • Non-randomised, experimental trial • Cohort study • Case-control study • Interrupted time series with a control group
III-3	A comparative study without concurrent controls: <ul style="list-style-type: none"> • Historical control study • Two or more single arm study • Interrupted time series without a parallel control group
IV	Case series with either post-test or pre-test/post-test outcomes

For randomised controlled trials the following NHMRC criteria³² (Table 2) were used by the reviewers. All randomised controlled trials were given a quality mark according to each of the criteria for each of the four categories.

Table 2 Checklist for appraising the quality of studies of interventions

Method of treatment assignment

- a. Correct, blinded randomisation method described OR randomised, double-blind method stated AND group similarity documented
- b. Blinding and randomisation stated but method not described OR suspect technique (eg allocation by drawing from an envelope)
- c. Randomisation claimed but not described and investigator not blinded
- d. Randomisation not mentioned

Control of selection bias after treatment assignment

- a. Intention to treat analysis AND full follow-up
- b. Intention to treat analysis AND <15% loss to follow-up
- c. Analysis by treatment received only OR no mention of withdrawals
- d. Analysis by treatment received AND no mention of withdrawals OR more than 15% withdrawals/loss-to-follow-up/post-randomisation

Blinding

- a. Blinding of outcome assessor AND patient and care giver
- b. Blinding of outcome assessor OR patient and care giver
- c. Blinding not done

Outcome assessment (if blinding was not possible)

- a. All patients had standardised assessment
- b. No standardised assessment OR not mentioned

Studies of interventions that were not randomised controlled trials, but were systematic reviews, controlled-cohort or case control studies were classified according to NHMRC criteria³⁴ as outlined below in Table 3. Papers were rated according to their adequate fulfilment of the quality criteria used.

Table 3 Quality of Non-randomised controlled trials (NHMRC)

Cohort studies

1. How were subjects selected for the ‘new intervention’?
2. How were subjects selected for the comparison or control group?
3. Does the study adequately control for demographic characteristics, clinical features and other potential confounding variables in the design or analysis?
4. Was the measurement of outcomes unbiased (i.e. blinded to treatment group and comparable across groups)?
5. Was follow-up long enough for outcomes to occur?
6. Was follow up complete and were exclusions from the analysis?

Case-control studies

1. How were cases defined and selected?
2. How were controls defined and selected?
3. Does the study adequately control for demographic characteristics and important potential confounders in the design or analysis?
4. Was measurement of exposure to the factor of interest (eg the new intervention) adequate and kept blinded to case/control status?
5. Were all selected subjects included in the analysis?

Systematic reviews

1. Was an adequate search strategy used?
2. Were the inclusion criteria appropriate and applied in an unbiased way?
3. Was a quality assessment of included studies undertaken?
4. Were the characteristics and results of the individual studies appropriately summarised?
5. Were the methods for pooling the data appropriate?
6. Were sources of heterogeneity explored?

Definitions of types of outcomes

The definitions of the types of outcomes used in the trial were also classified according to the following NHMRC criteria.³⁴

Surrogate

A laboratory measurement or a physical sign used as a substitute for clinically meaningful endpoint that measures directly how a patient feels, functions or survives. Changes induced by a therapy on a surrogate endpoint should be expected to reflect changes in a clinically meaningful endpoint.

Clinical

Outcomes that tend to be defined on the basis of the disease being studied; for example, survival in cancer, occurrence of vertebral fractures in treatments for osteoporosis, ulcer healing, walking distance or microbiological ‘cure’ in the treatment of infections.

Patient-relevant

Outcomes that matter to the patient and their carers. They need to be outcomes that patients can experience and that they care about (e.g. quality of life, return to normal function). Patient-relevant outcomes may also be clinical outcomes or surrogate outcomes that are good predictors (in a causal sense) of outcomes that matter to the patient and their carers.

Survey of peak representative bodies associated with NHPA

Evidence of collaboration and areas of potential collaboration were sought from peak bodies associated with the NHPAs. These bodies were sent an emailed survey with 2 subsequent reminders for the non-responders. The response to the email contact was poor, so the website of each body was also used to find information on the perceived role of the pharmacy profession. A sample survey can be seen in Appendix 4.

Results

The total number of documents retrieved from the various databases was 2504 which included some duplicates. Articles were scanned independently by 2 researchers and the relevant articles determined (548). They were then scanned again to specifically look at pharmacist activity. These documents were then further reviewed by a third researcher for content, reliability and relevance to the topics being investigated

Focusing on the period 2001-05 was appropriate because the literature review revealed a pertinent article written by Blenkinsopp et al (see Appendix 3). This group performed a systematic review of health promotion literature involving pharmacy that included the period up to early 2001. Due to the existence of their report and the time constraints placed on this project, this review was reduced to cover the period 2001-2005. This action reduced the total number of papers deemed relevant to 300 (see Appendix 2), of which 77 were eligible for systematic review (see Appendix 1).

Other Reports of Relevance

- see Appendix 3

There are several significant overseas reports on health promotion and public health activities relevant to this document. These reports used extensive literature searches which were conducted in 12 countries in Europe and the United Kingdom as well as Australian literature from 1990 to 2001-3. These reports are:

United Kingdom

The contribution of community pharmacy to improving the public's health, Report 1: Evidence from the peer-reviewed literature 1990-2001.

Anderson C, Blenkinsopp A, Armstrong, M,

Pharmacy HealthLink and the Royal Pharmaceutical Society of Great Britain, 2003.

This paper provides a critical and comprehensive overview of the peer-reviewed evidence relating to the contribution of pharmacy to public health from both the UK and internationally.

The contribution of community pharmacy to improving the public's health, Report 2: Evidence from the non peer-reviewed literature 1990-2002.

Anderson C, Blenkinsopp A, Armstrong, M

Pharmacy HealthLink and the Royal Pharmaceutical Society of Great Britain, 2003.

To identify and appraise the non-peer reviewed UK research on the contribution of community pharmacists to improving the public's health.

Public Health: a practical guide for community pharmacists

Pharmaceutical Services Negotiating Committee, National Pharmaceutical Association, Royal Pharmaceutical Society of Great Britain, Pharmacy HealthLink, 2003.

To gain an understanding of public health and the links to community pharmacy, pharmacy contribution and potential contributions and current policy context

Europe

Health Promotion in Primary Care: General Practice and Community Pharmacy

Ludwig Boltzman-Institute for the Sociology of Health and Medicine, Austria, 2001.

A collaboration of 12 European countries including Austria, Belgium, Denmark, Finland, Germany, Ireland, Luxembourg, The Netherlands, Portugal, Sweden and the United Kingdom reporting on the health promotion activities of their countries up to 2001 thus providing systematically organised knowledge about models of good and best practice, identification of strategic options for national implementation and the development of European guidelines while putting health promotion higher on the agenda and furthering European mutual learning and perspectives on this issue.

In Australia, sections of the extensive report below cover many activities related to health promotion and screening conducted by pharmacists in Australia.

Australia

The Value of Pharmacist Professional Services in the Community Setting: A systematic review of the literature 1990-2002. (copies available at: <http://guild.org.au/public/r&d.asp#reports>)

Roughead L, Semple S, Vitry A

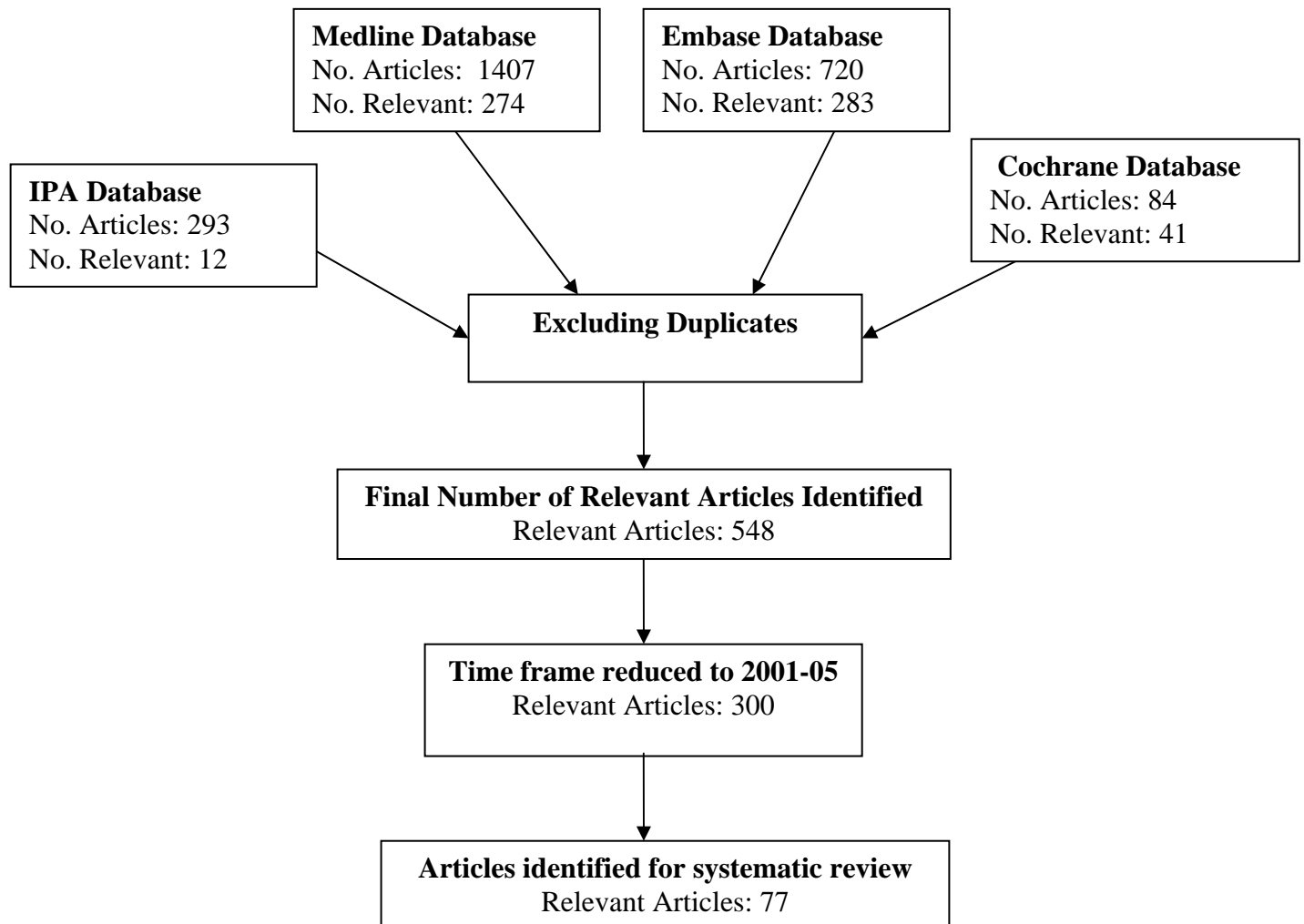
Quality Use of Medicines and Pharmacy Research Centre, School of Pharmaceutical, Molecular and Biomedical Sciences, University of South Australia, 2002.

Health promotion and screening areas covered: Pharmaceutical care services, pharmacist services providing education to patients or consumers, education services for health care professionals, pharmacist involvement in non-prescription medicine use, smoking cessation services, pharmacist immunisation services, and other services such as screening and monitoring.

There have also been individual reports commissioned by the Pharmacy Guild of Australia (copies available at: <http://guild.org.au/public/r&d.asp#reports>) covering the following related topics.

- Improving the quality, effectiveness and sustainability of smoking cessation services, delivered through community pharmacies
- An integrated service, initiated by community pharmacists, for the prevention of osteoporosis
- The role of Pharmacy in Immunisation
- Hypertension: Improving patient compliance and clinical outcomes through community pharmacist managed care
- Community pharmacists' role in continuity of care in Type 2 diabetes: An evaluation of a model
- Pharmacy Asthma Action Plan project:

Figure 2: Search Findings



The systematic review of relevant papers is included in Appendix 1.

Responses from NHPA

Description and position of Peak Community Bodies Representing Consumers in Relation to Pharmacy Involvement

Asthma

The two peak bodies in Australia with improvement in asthma management as their focus are the Asthma Foundations of Australia and the National Asthma Council.

Asthma Foundations of Australia

Asthma Foundations Australia is a coalition of the state-based asthma foundations of Australia and aims to ‘eliminate asthma as a major cause of ill health and disruption within the community’ with provision of asthma education, information, research, community advocacy and support to people with asthma and their carers. The Asthma Foundations of Australia consider they have a collaborative association with other asthma and related organisations and close partnerships with governments.

National Asthma Council

The National Asthma Council Australia³⁵ is a ‘non-profit body which serves the community by creating awareness and providing information about asthma’ as well as reducing the economic and social impact of asthma. It also aims to reduce asthma in the community. It works to encourage collaboration and communication between health professionals and other concerned with issues relating to asthma. It conducts national awareness and education campaigns and considers itself the ‘national communicating authority on asthma’ and aims to influence policy development and implementation^{35, 36}. The Pharmaceutical Society of Australia is a partner organisation.

The peak bodies concerned with asthma do offer training but do not suggest an extended role for pharmacy. Asthma Foundations South Australia suggests advice about smoking cessation from itself and QUIT, but not from pharmacies³⁷.

No reply to the survey was received from the National Asthma Council.

Cardiovascular Disease: Stroke

National Stroke Foundation

According to the 2003 Annual Report the National Stroke Foundation lists its activities as:

- Promoting and conducting research into the incidence, causes and treatment of stroke.
- Working with all stakeholders to develop and implement policy on the prevention and management of stroke.
- Educating the public about the risk factors and signs of stroke and promoting healthy lifestyles.
- Encouraging the development of comprehensive and co-ordinated services for all stroke survivors and their families³⁸.

The Foundation, as stated by Dr. Erin Laler, CEO, considers pharmacies as outlets for information, education for public health campaigns while working in partnerships to keep people safe. It also sees the pharmacy profession working on the development of best evidence guidelines for medication use in stroke prevention.

This organisation has no opinion on the role of pharmacy in anticoagulation but does see a role in hypertension and smoking cessation. The role in hypertension is one of screening to increase the identification of those with hypertension and consequent referral.

Pharmacies are seen as information sources using the 'Strokesafe' resources developed by this foundation and actively encouraging individuals in lifestyle change to reduce the risk of stroke. Generally, the pharmacy profession is not seen to have a role outside the pharmacy itself except working on the evidence guides on medication.

Figure 2 The role of pharmacy in services of screening, monitoring and consequent referral as perceived by the National Stroke Foundation

	Yes	No	N/A	No opinion	Specific Comments
Anticoagulation				X	
Arthritis			X		
Asthma			X		
Bone Density Testing			X		
Depression			X		
Falls prevention			X		

Heart Health			x		
Hyperlipidaemia/Cholesterol			x		
Hypertension	x				Screening through pharmacy with appropriate referral could increase identification of those in the community with HT
Immunisation			x		
Nutrition			x		
Osteoporosis			x		
Pain management			x		
Smoking Cessation	x				
Weight Management			x		
Wellness Activities			x		
Wound Care			x		

Cardiovascular Disease: Coronary Heart Disease

Heart Foundation

The vision of the of the National Heart Foundation is for Australians to have the best cardiovascular health in the world and the mission is to reduce the suffering, disability and death from heart, stroke and blood vessel disease in Australia. The Foundation is an independent Australia-wide, non-profit health organisation and works to achieve its aim by:

- promoting and conducting research to gain and apply knowledge about heart,
- stroke and blood vessel disease, its prevention and treatment
- promoting and influencing behaviour which improves heart and blood vessel health by conducting education and other programs directed at health professionals, those with heart disease, and the Australian community at large³⁹

The website of the National Heart Foundation does not mention the role of the pharmacy profession except as a supply for blood pressure monitors but instruction of these monitors is by a ‘trained professions (doctor, nurse, technician)’³⁹.

The health professional resources are for doctors as lipid and hypertension management guidelines. General resources do not mention the pharmacy as a source of information or a role in cardiac disease management in health promotion or screening.

No reply was received from the Heart Foundation for the survey sent in time to add to this report. Informally, the research Team has been told that the Foundation is formulating a detailed response focused on supporting evidence-based practice (i.e. if there is sound evidence that pharmacists can usefully perform activities such as screening, then the Foundation will be inclined to support that role).

Cancer

The Cancer Council

The Cancer Council's representative, Dr. Andrew Ellerman, Chair of the Tobacco Issues Committee stated that:

'Smoking cessation is an excellent opportunity for health promotion via pharmacies. Pharmacies are the key outlet for NRT products, and inquiries by smokers for purchase or advice provide a ready made opportunity for intervention.'

Most of the various state Quit campaigns have some degree of collaboration with pharmacies, especially around peak campaign periods such as New Year and World No Tobacco Day.

He referred to a project 'Improving the quality, effectiveness and sustainability of smoking cessation services, delivered through community pharmacies' recently conducted in South Australia. Pharmacists were given training and tested using the mystery shopper method to assess quality of advice on smoking cessation. The report recommended a payment to pharmacists in light of potential savings to the health system⁴⁰.

The Council Cancer does, however, support the role of pharmacists in its 'Stopping Smoking' position statement:

'Doctors, pharmacists, nurses, and other health professionals can be a good source of advice and information to help smokers to quit. They should routinely give brief non-judgemental advice to stop smoking to all smokers they see. More intensive behavioural support in combination with drug treatments is generally the most effective approach'⁴¹.

According to the Cancer Council's website, it does not state a role for pharmacists in skin cancer screening in its position statement 'Screening and early detection of skin cancer' or in bowel cancer screening ⁴¹.

Quit Victoria

Quit Victoria have strong links with pharmacy bodies, the Pharmaceutical Society, the Pharmacy Guild as well as the banner groups Amcal and Sigma. Quit contributed free in store training for pharmacists and pharmacy assistants in Victoria. It has worked with organisations such as PGA, PSA, the National Prescribing Service, and Amcal on the development of an on-line training course for pharmacy assistants, the Smoking Cessation Training Package, 'Stop Smoking for Life' and Self Care Fact Cards. Quit has also developed posters to help pharmacies to give advice on smoking cessation.

Diabetes

Diabetes Australia

Diabetes Australia describes itself as:

'Diabetes Australia Ltd is the national peak body for diabetes in Australia - the federation comprises twelve major diabetes organisations. Diabetes Australia advocates on behalf of all Australians with diabetes – estimated to be 1.2 million – and their friends, family and carers.'⁴²

Medication advice is published in their Conquest magazine by a pharmacist author. However, on the website there is no role for the pharmacy profession except as a supplier of medications ⁴².

Australian Diabetes Educators Association

The Australian Diabetes Educators Association (ADEA) does credential diabetes educators. Some approved courses are open to pharmacists and all health professionals at Flinders University, South Australia, Curtin University, Western Australia and the University of Technology, New South Wales. The Graduate Certificate of Diabetes Education from Deakin University does not specify who is able to take this course but the Certificate in Diabetes and Health Care at Mayfield Education, Victoria is only available for nurses,

dietitians or podiatrists. The Diabetes Educators Association also only allows as members those who hold basic professional qualifications as registered or enrolled nurses or in dietetics, podiatry, psychology, medicines and aboriginal health. Pharmacists are not on this list of those who may become diabetes educators ⁴³.

Injury prevention and control

No peak bodies were identified for this section.

Depression

beyondblue

Beyondblue is a community organisation dedicated to increasing awareness and understanding of depression ⁴⁴ through community awareness and destigmatisation, advocacy for consumers and carers, prevention and early intervention, primary care, research and partnerships.

Currently, *beyondblue* describes itself as:

beyondblue is a national, independent, not-for-profit organisation working to address issues associated with depression, anxiety and related substance misuse disorders in Australia.

beyondblue is a bipartisan initiative of the Australian, state and territory governments with a key goal of raising community awareness about depression and reducing stigma associated with the illness.

beyondblue works in partnership with health services, schools, workplaces, universities, media and community organisations, as well as people living with depression, to bring together their expertise around depression.

beyondblue's five priorities:

1. Increasing community awareness of depression, anxiety and related substance misuse disorders and addressing associated stigma.

2. Providing people living with depression and their carers with information on the illness and effective treatment options and promoting their needs and experiences with policy makers and healthcare service providers.
3. Developing depression prevention and early intervention programs.
4. Improving training and support for GPs and other healthcare professionals on depression.
5. Initiating and supporting depression-related research ⁴⁴

The partnerships *beyondblue* works with include the Royal College of General Practitioners, a number of universities and health promotion and primary health care organisations. There is no mention of any pharmacy related organisations.

This organisation sees pharmacies as ‘substantial untapped potential’, and ‘welcomes closer partnerships with pharmacies as these together with general practitioners and other allied health practitioners are the front line for prevention, early intervention, identification and management of the illness’ (see Appendix 4)

Figure 3 The role of pharmacy in services of screening, monitoring and consequent referral as perceived by the beyondblue organisation

	Yes	No	N/A	No opinion	Specific Comments
Anticoagulation	X				
Arthritis	X				
Asthma	X				
Bone Density Testing	X				
Depression	X				
Falls prevention	X				
Heart Health	X				
Hyperlipidaemia/Cholesterol	X				
Hypertension	X				
Immunisation	X				Pharmacy practice nurses could be employed for this as trialled in Australia with child

					health nurses weighing/monitoring progress in newborns in pharmacies
Nutrition	X				
Osteoporosis	X				
Pain management	X				
Smoking Cessation	X				
Weight Management	X				
Wellness Activities	X				
Wound Care	X				

Arthritis

Arthritis Australia

Arthritis Australia is the peak body which lobbies on behalf of those with arthritis, conducts education for consumers and health professionals, information and supporting those with arthritis. Its goal is to have a community free of the pain and disability of arthritis ³⁶.

No reply was received from Arthritis Australia as to its opinions for the role and potential role of the pharmacy profession and community pharmacies in management of arthritis and its associated conditions.

Osteoporosis Australia

Osteoporosis Australia aims to reduce the incidence of osteoporosis by 15% by the 2010. It also wishes to establish osteoporosis as a major health issue by increasing awareness and improving management and prevention strategies. It states that General Practitioners and other health professionals need to increase their knowledge of osteoporosis and its consequences ³⁵.

No reply was received from this organisation.

Discussion

The main disease states that have been studied in relation to health promotion in community pharmacy are cardiovascular disease, asthma, diabetes and osteoporosis. In general, the quality of these studies is poor, with only a small number of high quality randomised controlled trials (RCTs) evaluating the effect of community pharmacy's involvement in health promotion. Since 2001, there are only a few studies that have rigorously evaluated community pharmacy-based involvement in health promotion.

There was a paucity of data on the benefits of community pharmacy involvement in the management of asthma. Bheekie et al ⁴⁵ and Cordina et al ⁴⁶ evaluated community pharmacy involvement in asthma management; both studies showed very minimal clinical impact. Herborg et al ⁴⁷ on the other hand in a large controlled trial (not randomised) showed significant benefit for patients who saw a community pharmacist on a monthly basis compared to a usual care group. There were large benefits in quality of life and in clinical areas such as days off work and symptom-related asthma status. Importantly, pharmacists were able to influence the proportion of patients who received corticosteroids. Interestingly, over one-fifth of the intervention patients withdrew from the study at some point during follow-up, suggesting this type of pharmacy-based management may be only taken up by some not all patients. This study could have large implications for health promotion of asthma management in community pharmacy and is one of the only studies describing an improvement in clinical status following a pharmacy-based intervention. This type of study with its large numbers needs to be replicated in a randomised controlled clinical trial to give us the highest level of evidence for pharmacist involvement in asthma management.

A number of small studies have evaluated the effect of community pharmacy-based screening services for detection of osteoporosis. Three studies published in the literature since 2001 were generally of poor quality (they were only descriptive in their design) making conclusions from their success limited in their generalisability.

Since 2001, there have been few studies evaluating the effect of pharmacist involvement in the management of patients with diabetes. Armour et al.,⁴⁸ in an Australian controlled trial, evaluated the effect of monthly visits to the pharmacist by type 2 diabetics compared to usual care. Although this study was of mid-range quality for a controlled trial, it importantly

found that there was an improvement in HbA_{1c} in the intervention group compared to controls and that quality of life measures improved significantly more in the intervention group compared to controls. This program has direct applicability to community pharmacy practice in Australia, with the results showing that pharmacists have the ability to improve the outcomes of patients with diabetes. This type of program needs to be more rigorously evaluated in a high-quality randomised controlled trial, which may provide sufficient evidence for the effectiveness of this type of program.

A small randomised controlled trial by Sarkadi et al.⁴⁹ evaluated the effect of a 12-month educational intervention by pharmacists with the primary outcome being HbA_{1c} control compared to baseline. This program significantly improved HbA_{1c} levels at 24-months compared to the control group, providing more evidence that education programmes in community pharmacy can improve the management of diabetes. Again, this program needs to be evaluated in a larger RCT to provide further evidence of the effectiveness of pharmacist involvement in the management of diabetes.

The most evidence for community pharmacist involvement in health promotion was in the management of cardiovascular diseases such as hypertension, hyperlipidaemia and anticoagulation. However, a number of these studies were of poor methodological quality or were conducted in outpatient settings, making the results difficult to extrapolate to community pharmacy practice in Australia.

There were no RCTs evaluating the effect of community pharmacy involvement in the management of anticoagulation. The largest amount of data comes from pharmacy involvement in the detection and management of cardiovascular disease, with the pivotal SCRIP (Study of Cardiovascular Risk Intervention by Pharmacists)⁵⁰ study having the best methodological design and outcomes. This was a randomised controlled trial conducted in 54 community pharmacies in Canada to determine the effect of a program of community pharmacist intervention on the process of cholesterol risk management in patients at high risk for cardiovascular events.

Patients randomised to pharmacist intervention received education and a brochure on risk factors, point-of-care cholesterol measurement, referral to their physician, and regular follow-up for 16 weeks. Pharmacists faxed a simple form to the primary care physician identifying risk factors and any suggestions. Usual care patients received the same brochure

and general advice only, with minimal follow-up. The primary end point was a composite of performance of a fasting cholesterol panel by the physician or addition or increase in dose of cholesterol-lowering medication.

The external monitoring committee recommended early study termination owing to benefit. The primary end point was reached in 57% of intervention patients vs. 31% in usual care (odds ratio, 3.0; 95% confidence interval, 2.2-4.1; $P < 0.001$). It was concluded that a community-based intervention program improved the process of cholesterol management in high-risk patients. The program demonstrated the value of community pharmacists working in collaboration with patients and physicians. This high-quality RCT provides significant evidence that community pharmacists can provide positive benefits to patients in the management of cardiovascular disease. This study provides an ideal model for transfer in to community pharmacy practice in Australia.

This review of the pharmacy literature indicates strongly that very little rigorous research has been undertaken into pharmacists' involvement in health promotion and screening except in specific areas of smoking cessation, hypertension, cholesterol, diabetes and osteoporosis. Many of the articles evaluated were reports and comments in non-peer-reviewed journals and trade publications. Examples often present a narrow view of health promotion within the pharmacy profession, consisting of an array of individual patient education processes and information pamphlets (leaflets) or posters, displayed in the pharmacy.

While the Australian pharmacy literature has been extensively examined, articles from overseas were also searched and reviewed to provide an insight into participation in health promotion activities and screening by pharmacists. This review shows that the numbers of pharmacists who do participate in health promotion projects or programmes are either in relatively small groups or do so as individuals. Compared to the actual numbers of registered pharmacists and pharmacies in these countries studied, the overall number participating in health promotion activities is small.

In Australia, before the 1950s, pharmacists moved from primary health (diagnosing, advising and treating health problems) to prescription-related activities⁵¹. A survey conducted by Ortiz⁵² in 1983 to determine a pharmacist's role found that to 'promote healthy lifestyle' was ranked 9 out of a possible 18 work tasks. Rated last was 'helping to manage stable chronic disease'. Pharmacists considered their primary role to be dispensing prescriptions; their

second, to answer over-the-counter (OTC) medication questions; and their third, to answer prescription medication questions. Ortiz claimed that the function of a pharmacist is limited by his or her abilities and role perceptions.

In 1985 it was reported that as many people visited a pharmacy as visited a doctor in any one year⁵¹. Nearly 20 years later, community pharmacies in Australia annually have 78.2 million consultations regarding health and medications⁸, showing multiple visits to and accessibility of the profession by most members of Australia's population.

In 1985, Coper and Gilbert⁵³ proposed that the role of the pharmacist in primary health care activities was one often ignored by health service planners. Pharmacists were not aware of primary health care networks and did not seek involvement. Pharmacy was not funded to have any involvement. However, pharmacists were welcomed if they made approaches to these organisations and groups. Coper and Gilbert suggested that: 'This may involve pharmacy changing its traditional focus to doing things with people, rather than to people'. What pharmacists need is a: '...rethinking of what primary health care is, and how pharmacists can contribute'. But: 'In practice this requires a number of initiatives from within pharmacy. At all levels of education, an increased emphasis is required in the areas of multi-disciplinary education, aspects of health promotion, epidemiology, health education, screening, early detection...'.

The report on the *Value of Professional Pharmacy Services*⁵⁴ delineates a community pharmacist's role in cognitive services using the Benrimoj model of 1998:

1. Provision of Drug Information;
2. Provision of Pharmacy and Pharmacist Only Medications;
3. Clinical Interventions;
4. Medication Management Services (Drug Regimen Review);
5. Preventive Care Services for Patients with Chronic Conditions; and
6. Participating in Therapeutic Decisions.⁵⁴

The words 'health promotion' only appear within the detail of the fifth point in the guise of preventive care services, and then only in an information-supply function. Most of the other services listed can be interpreted as health promotion activities but are not recognised as such in this model.

Consumers may have a low level of awareness of pharmacists' breadth of skills and drug knowledge and lack of familiarity with pharmacists' roles as drug- and health-related information providers. Pharmacists are seen as the drug expert ¹, but a role in health promotion and screening is not the norm.

'The Role of the Community Pharmacist in Health Promotion—A Survey of Health Education Presentations Outside the Pharmacy' ⁵⁵, provided reference information to assist pharmacists to give presentations. Motivating factors to give presentations included increased goodwill and publicity, professional satisfaction, rewarding experiences, improved relationships and professional standing in the community, and providing an increased awareness of the pharmacists' role in health education. Barriers to this practice were lack of remuneration but the respondents suggested that the public would pay for this service. Half the respondents replied that they would like to improve their presentation skills. As a result of this study, Gowan stated that pharmacists have a key role in health promotion both within the pharmacy and outside it in the community. Gowan ⁵⁵ also stated that pharmacists need to be involved in local health care programmes and offer health education, despite the relatively low number reported as currently offering this service.

In 1993, Mahoney, established that participation in health promotion in rural areas by pharmacists usually consisted of professionally generated health promotion programmes such as Pharmacy Self Care¹² and Discover Better Health⁵⁶. Pharmacists were frequently involved in health screening programmes such as Infotest and blood pressure monitoring with several partners such as local hospitals, the Diabetes Association and the local asthma support groups⁵⁶. All of these programmes described were within the pharmacy itself, and the study did not provide an actual measure of the participation by pharmacists in any outside programmes.

In the 1995 Commonwealth study on *Information Needs for Health Promotion in Primary Health Care*⁵⁷, the PSA replied on behalf of the pharmacy profession, amongst responses from many other health groups. Seventy-nine percent of the individual pharmacist respondents in this study were male and fewer than 35% of these saw themselves as involved in health promotion; that was the lowest participation rate of all health respondents. However, the PSA stated that pharmacists engaged in 'giving talks to community groups on

a broad range of topics' as an activity. Three-quarters of the respondents had never heard of the resources HealthWiz, HEAPS or a Social Health Atlas. Online or computer bulletin boards were unknown to 50% of respondents. Information sources most used by respondents originated from professional organisations and commercial organisations (over 70%). Pharmacists were asked to nominate whether they participated in the various action areas of the *Ottawa Charter*; the return rate was low. Respondents recommended an upgrade of 'HEAPS, HealthWiz etc' and courses on information management be implemented at an undergraduate level. No such recommendation was made for educational resources for practising pharmacists⁵⁷ or for inclusion of health promotion theory in future professional development.

In an unpublished survey of Victorian pharmacists on *Community Pharmacist Public Health/Health Promotion*⁵⁸, a wide range of health promotion programmes was recorded by pharmacies. Examples included Pharmacy Self Care¹², immunisation, drugs and driving, folate supplementation, cardiovascular-related promotion of physical activity, diet and healthy eating, and accident prevention including child poisoning. The respondents provided no specific detail. Three pharmacies organised walking groups and one visited schools. Only one pharmacy mentioned offering local radio station talks and infant welfare centre talks. When asked to 'Tick which health promotion programs your pharmacy is involved in?', many listed information kiosks, which are computerised information provision stations, and situated in the pharmacy. Of 1060 surveys sent, 213 were sent back, thus giving an approximate overall response rate of 20%. Using examples of some of the health services suggested by the survey, the replies indicated that pharmacies supplied services to the following groups: nursing homes (178), lectures (97), Community Mental Health Centres (13) and community education (90). One pharmacy listed occasional talks to the local arthritis group and diabetes group.

This study did not ascertain when these services were provided, how often, or if conducted within or outside the pharmacy itself. However, it can be seen that a high proportion of respondents from the relatively low overall return rate offered these services. This survey was sent to community pharmacies in metropolitan, urban and rural areas of Victoria. Consequently the responses reflected the participation by the pharmacy business, not the individual practitioners, and there was no distinction indicated between geographic locations of the respondent pharmacies. Many respondents agreed that pharmacy should be involved

with government health programmes and that because pharmacy does not contribute it is often bypassed; however, the respondents indicated pharmacies must be recompensed for this contribution. This survey showed that community services offered by the local pharmacies indicated a degree of participation in local activities, but it does not give a clear picture of the actual involvement by individual practitioners over time. Overall, the respondents acknowledged that the profession needed to be pro-active in public health and health promotion, however, the survey showed limited contribution outside the pharmacy setting without specific detail given of actual events.

The Curtin University survey, entitled *The National Pharmacy Database Project* conducted by Berbatis et al. in 2002,⁸ surveyed 15% of Australia's community pharmacies, a number deemed sufficient to give a statistically viable sample for analysis. Of 4447 possible pharmacies, 1131 in all areas of Australia were represented in this project. As 81% of pharmacies are in PhARIA 1, a portion of this group was used together with larger proportions in the PhARIA sections of 2 to 6 to enable the project team to draw conclusions from the results. The usual respondent was the owner or partner (73.3%), and the answers relate to the activities of the community pharmacy. Sections on 'Enhanced Pharmacy Services' and 'Primary Health Care' were examined in more detail to provide background supporting this study.

Only certain areas of the survey itself that related to this current study were examined to ascertain those areas with a health promotion focus. Many of the services that could be interpreted as health promotion were listed in 'Section B: Enhanced Pharmacy Services, Paid or Unpaid'⁸. Services in this section were health services such as those related to asthma, diabetes, methadone maintenance, herbal medicines, hypertension, smoking cessation, skin and wound care, and weight reduction⁸. For all activities listed, the answers indicated the services that the pharmacy made available, but there was no detail as to the number of times that this service was actually offered or that the community accepted this offer. Usually, health promotion activities are offered inside the pharmacy, but this survey indicated that about a quarter of pharmacies do offer other services, such as community education, outside the pharmacy itself - however the actual degree of uptake compared to the degree of offering the service is not made clear.

A variety of enhanced services are expected within Australian pharmacies, but Berbatis et al. suggested that the differences in the range of services offered might relate to interstate differences in training⁸, and identified several barriers and facilitators to such services. Barriers included lack of time (90.3%), shortage of pharmacists (78.3%), no extra remuneration (63.3%) and inability to find locums (63.2%). The greatest facilitators were dedicated study time (77.9%), accreditation (75.6%), closed counselling areas (72.8%) and access to patient notes (70.6%)⁸. It can be seen that many of the barriers and facilitators may relate specifically to the other services offered in this section of the survey, but many are applicable to this research on potential practice change.

Section F, 'Primary health care services including pharmacy (S2) and pharmacist-only (S3) medicines'⁸ in this same survey, defined primary health care services in the pharmacy, as sales and advice for pharmacy only (S2) or pharmacist only (S3) medications, information, misuse of these medicines, consumer medication information, referrals to general practitioners or other health professionals. This definition of primary care services dominates the pharmacy profession and consequently restricts it in the range of activities that can usually be thought of as primary health care.

Overseas Literature

From Canada, the study 'Community Pharmacists Participation in Health Education and Disease Prevention Activities' by Paluck, Stratton and Eni⁵⁹ quoted activity by pharmacists in the past year. Pharmacists usually 'participate in health education/disease-preventing activities directly related to the dispensing or selling of medications'. Speaking to community groups on health-related matters, participating in disease screening programs, and proactively initiating health promotion activities, such as lifestyle issues or smoking status, elicited the lowest response.

In a recent newspaper insert, the Canadian Pharmacists Association reported a variety of services⁶⁰. In a country of 27 000 pharmacists there is no fee structure for additional services of medication reviews, assessments, monitoring or home care. It was suggested that pharmacists do have a role in 'health protection', but do not effectively 'connect' with the

public health system. No mention is made of any activities such as those investigated by Paluck above.

In Great Britain there are many references to the Barnett High Street Scheme, launched in 1991 as one of the first projects to introduce health promotion into community pharmacy practice¹⁷. This scheme, essentially a brochure distribution scheme, used information leaflets, which were two-sided pamphlets about health issues of concern and healthy lifestyle advice. Pharmacists involved in this project, were trained in health promotion knowledge and skills. However, this distribution scheme was later defined as 'passive health promotion'¹⁷. Pharmacists were then encouraged to be 'pro-active' in the use of the leaflets by giving them to customers when asked for advice, or to be proactive in opportunistic situations when advice could be given, thus providing an active health promotion service.

Other studies inside pharmacies focused on the pharmacist giving advice and recognising when a person would respond to this advice using the Stages of Change model as a basis. Examples of these include health promotion programmes such as smoking cessation⁶¹ and cholesterol testing⁶². By 1996 it was acknowledged that pharmacists should move on from being the experts, telling individuals to change, and undertake a role as facilitators, thus allowing negotiation, and recognising the right of the individual to decide and choose.

In 1997 the *Pharmaceutical Journal*⁶³ reported that although leaflets attracted a professional allowance, research conducted by the Avon Health Authority confirmed that pharmacists see health promotion as part of their role but they are constrained by time, resources and training. Despite funding for this service, it appears that there was no requirement for leaflets to be used or handed-out. A self-audit⁶⁴ was developed for leaflets as an education and promotion tool for pharmacists to use within their pharmacies.

The Royal Pharmaceutical Society of Great Britain, developed guidelines for health promotion practice by community pharmacists in 1998¹⁷. Despite this, pharmacy consumers did not see a role for pharmacists in health promotion or indeed the reason for this involvement. Most thought it was the role of the doctor to give advice on health. Only 17% of consumers responded that the leaflets were useful⁶⁵. Still later, in 2002 when consumers were interviewed again, they still did not perceive the role of community pharmacy as being one involved in health promotion⁶⁶.

In Great Britain, the structure of the National Health Service ‘works against’ pharmacists’ involvement in health promotion because doctors are a free first option for many patients, consequently the pharmacist must make use of other opportunities. If the patient is in a certain health category—for example, elderly, with a chronic disease, pregnant, or a young child—prescriptions are free of charge. The same item that a pharmacist sells can be obtained without charge by prescription from the doctor. Consequently, many consumers do not go to the pharmacist in the first instance, as happens in Australia. However this system can work for pharmacists, as there are many options for employment by Health Care Trusts in positions such as primary care pharmacists, practice pharmacists or community services pharmacists^{67, 68}. These Health Care Trusts can also support pharmacy practice with grants for pilot programmes to individual pharmacists⁶⁸⁻⁷¹, yet it appears few pharmacists take advantage of this opportunity. In 1998, Blenkinsopp, Panton and Anderson argued: ‘Health promotion needs to become a ‘way of thinking and working’ rather than an ‘add-on’ activity.’¹⁷.

Yve Buckland⁷² maintained that programmes, such as the leaflet distribution Barnett High St Scheme, were still influencing practice 10 years later and is quoted in the British literature as saying: “In the past pharmacists’ role in health promotion have been geared simply towards health education”. She stated that pharmacy should offer services such as screening, testing facilities and advice. The Pharmaceutical Healthcare Scheme was developed to promote and support the development of models of best practice and to lobby government for a wider role for pharmacists. Research and developing key relationships with other professional bodies and training organisations were two of the areas necessary to develop to represent the needs of independent and multiple pharmacies. To maintain currency of health promotion advice, the supply of education leaflets was taken over by Health Promotion England⁷³. Statutory bodies thus ensured that the profession had up-to-date information and provided links that could enhance the role of the profession to one supported in health promotion activities.

Maguire²², at the European Conference on Health Promotion in General Practice in 2001, indicated that there is a clash of cultures and a basic misunderstanding of the difference between health promotion and pharmaceutical care. The pharmacists who presented at this conference delivered papers on pharmaceutical care, not health promotion and thus did not understand the difference in definition. His example was the presentation of a study on

asthma, which did not take into account the smoking habits of its participants. Maguire proposed refining the definition of health promotion for pharmacy to one of 'primary care health promotion' thus including both drug-related and lifestyle advice into pharmacy practice and therefore ensuring provision of a holistic service to improve health.

In Great Britain, not all pharmacists were willing to become active in health promotion projects. In Birmingham in 2000,⁷⁴ although 95% of residents used the only pharmacy in the area, the pharmacist was busy dispensing and would not participate in a community health promotion project on smoking cessation with the Birmingham Housing Action Trust (HAT). Despite a financially supported pharmacy intervention project being offered, the pharmacy still would not participate. This example of a refusal to participate demonstrates a lost opportunity for the profession to work with the community to improve the health of the local area.

In Scotland there has been a change towards health promotion for pharmacies. The development of the programme, 'Health Promotion for Community Pharmacists' in greater Glasgow (1995–90)⁷⁵ aimed to provide introductory and specialist training on priority health promotion topics, support for participation, and a resource manual, and to evaluate the development of health promotion in pharmacy. It was proposed that health promotion would become an integral part of pharmacy practice within the pharmacy^{75–80}. An increasing research role for pharmacists within pharmacies was developed because the 1140 community pharmacies were seen as already acting as walk-in healthy living centres with potential to provide a wider range of health promotion advice^{75, 79, 80}. As there are 37 912 practising pharmacists and 12 492 registered pharmacies in Great Britain^{81, 82}, the impact of the Scotland project with such a high number of participating pharmacies was significant compared to that of the rest of Great Britain.

Recent literature from the Royal Society of Great Britain's *Pharmaceutical Journal* cites local initiatives by individual pharmacists within their pharmacies in the areas of weight management and healthy lifestyle, smoking cessation and primary care,^{69, 70, 83, 84} together with support from the Primary Care Trust smoking cessation clinics,⁷¹ or in men's health⁸⁵. These initiatives provided obvious professional satisfaction for the practitioner involved and a valuable community service.

Anderson and Blenkinsopp⁶⁶, who reviewed local initiatives in public health, now use the term 'public health' for when health is promoted through society, and the term 'health promotion' when the promotion is directed to the individual. There were 184 projects identified in the areas of smoking cessation (63), drug misuse (44), sexual health (31) accident prevention (7), health screening, obesity and weight reduction, heart disease and diabetes (4 each) and others⁶⁶. Activities reported were service provision or information. Anderson and Blenkinsopp suggested that this was a high level of involvement, however, in a country with nearly 13 000 pharmacies, with 184 projects representing a participation rate of as low as 1.4%, this could surely only be called a start. The description for the role of the pharmacist is given as 'public health', but in many of the examples listed that have been developed and implemented in Great Britain over the past 15 years, this same role was previously designated one of 'health promotion'^{17, 86-89}.

In the United States, when searching for pharmacy practice guidelines as an indicator for health promotion participation expected by the profession, five American Pharmacy Associations were found that did not have any position papers or guidelines on this form of pharmacy practice⁹⁰. Health promotion could not therefore be considered as an important part of pharmacy practice within the United States. Suh⁹¹ found that pharmacists considered health objectives related to preventive services more important than objectives related to health promotion and protection. But, preventive services are related to the definitions and theories of health promotion practice described previously. Improving nutrition or reducing tobacco use was classed as health promotion, but examples of preventive services included prevention and control of diabetes or hypertension. However, part of the information and counselling in these preventative services is often improving nutrition and reducing tobacco use. Confusion in definition continues to limit the profession providing a service to complement existing common practice; and this is exacerbated by the lack of professional guidelines on health promotion practice.

Kotecki et al ⁹² surveyed 'Health Promotion Beliefs and Practices among Pharmacists in Indiana', to determine whether pharmacists see health promotion as part of their responsibility. Pharmacists believed they had a responsibility to promote healthy behaviours when counselling patients, but barriers to health promotion practice were cited. These included the constraints of introducing another practice while working (93%), lack of reimbursement (62%), physical design of the pharmacy (47%), lack of information or

training (46%) or insufficient management support (29%). The conclusion stated: ‘Yet, while most pharmacists perceived that many health promotion behaviours are “very important” for the average adult, most did not feel they should be “very involved” in counselling patients on health-promoting behaviours’.

Kotecki et al.⁹² stated that personal beliefs concerning both the validity of health promotion and the pharmacists’ ability to influence patient behaviour might affect how much effort a pharmacist expends using health promotion approaches. Pharmacists were well-positioned to make important contributions towards health promotion and disease prevention. However, this study recognised the activities within a pharmacy, but gave little detail to the programmes provided to the general community. The work of O’Loughlin et al ⁹³ who surveyed pharmacists about roles in cardiac disease health prevention education, supports this conclusion.

Health promotion was reinforced as the third domain of pharmacy in the Pharmacy Practice Classification Project (PPAC) ⁹² conducted by the American Pharmacists Association. The four domains of competency standards are:

1. Ensuring appropriate therapy outcomes;
2. Dispensing medications and devices;
3. Health promotion and disease prevention; and
4. Health systems management.

Therefore, it appears that health promotion and disease prevention are recognised as roles for the pharmacy profession in the United States, although there appear to be no official guidelines for use by the profession.

Ciardulli⁹⁴ used ‘Health Observances to Promote Wellness in Community Pharmacies’ to suggest that pharmacists develop pharmacy-based health promotion activities, such as education and screening programmes. However, as this service takes place within a pharmacy, it again provides an example of the role of the pharmacist as one individual isolated from other health professionals who often have a more involved role in health promotion activities in the community itself.

Beney⁹⁵ et al in a 2002 Cochrane Database Systematic Review of pharmacists’ role expansion to working with other health professionals and the public, found 25 studies but

doubted the generalisability of these studies as they had poorly defined interventions, cost assessments and patient outcome data; they suggested that more rigorous research is needed. Due to the nature of the community pharmacy practice, pharmacists do not appear to work with other professions other than when discussing issues involved with individual patient care. Pharmacies, especially rural pharmacies, often provide the site for other health professional consultations but each profession works separately in this context⁹⁶⁻⁹⁸.

Conclusion

Very few examples of participation in health promotion activities outside the pharmacy setting have been found in this literature review. However, many isolated cases of innovative activities have taken place within the pharmacy setting. The results from published surveys of pharmacists, with small return rates, consistently suggested service provision by pharmacists in relatively small isolated activities. Most did not give actual participation rates over a defined time. Examples provided show pharmacy practice is frequently one of an isolated health professional, with the pharmacist not being accustomed to going outside of the pharmacy context into the community to participate in community activities.

At present, the role of community pharmacists in health promotion in this country and overseas can be essentially described in the same manner as the results of the 2002 Cochrane Database Systematic Review of pharmacists' role expansion - there are relatively few studies, with doubtful generalisability as they have poorly defined interventions, cost assessments and patient outcome data. More rigorous research is needed.

A very useful starting point would be for the Pharmacy Guild of Australia and The Pharmaceutical Society of Australia to form closer links with the key national organisations related to the NHPA, especially as the latter organisations appear to have generally limited views of community pharmacy practice.

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Appendix 1 Systematic Review results

Disease State

Anticoagulation

Reference

Amruso, N, 2004, J Am Pharm Assoc, ; 44: 467-470

Title

Ability of Clinical Pharmacists in a Community Pharmacy Setting to Manage Anticoagulation Therapy

Evidence Grading	E4	Descriptive
Study Type	Descriptive	
Target	Target at risk individuals	
Source Type	Manual Search	
Outcome Types	Surrogate	
Setting	Community	
TimeFrame	6-months	
Country	UNITED STATES	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Observational study of 50 patients taking warfarin in Tampa Bay Florida, and had their INR monitored in a community pharmacy setting. The patients included in the observational cohort were newly initiated on warfarin and were monitored for six consecutive months.	Pharmacists utilised point of care INR monitors to measure the INR and made dosage adjustments according to a pre-specified protocol. Pharmacists also provided patient education.	Percentage on INR measurements within the therapeutic range was the primary outcome. Secondary outcomes included patient satisfaction and incidence of bleeding and thromboembolic outcomes.	Overall, 56% of INR measurements were within the patients' therapeutic range. 5 major bleeds occurred in this group. 22% of patients completed a satisfaction survey, rating the service highly.	The lack of a control group is the major limitation to this study, no comparisons with usual care could be made. Low response rate to the patient surveys mean we should review these responses with caution.

Disease State

Anticoagulation

Reference

Jackson SL, , 2004, J Intern Med, ; 256: 137-144

Title

Improving the outcomes of anticoagulation: an evaluation of home follow-up of warfarin initiation.

Evidence Grading	E2	Randomised Controlled Trial
Study Type	Randomised Controlled Trial	
Target	Management and/or improving risk & monitoring response	
Source Type	Manual Search	
Outcome Types	Clinical	
Setting	Community	
TimeFrame	3 months	
Country	AUSTRALIA	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Randomised controlled trial of pharmacist follow-up of patients commenced on warfarin in the hospital setting and discharged to General Practitioner (GP) care. 128 patients were enrolled in the trial in Tasmania, Australia. Patients were assessed for clinical outcomes at three months after the initial discharge.	The intervention group received a home visit by a pharmacist to test the INR and give warfarin education on four visits on alternate days after discharge from hospital, the pharmacist called the GP with each INR result. The control group received usual care.	INR at eight days after discharge, clinical complications (major bleeding, embolic, death) were assessed 90 days after the initial discharge.	At eight days after discharge, 67% of the intervention group had a therapeutic INR compared to 42% in the usual care group, p<0.002), with 26% having a supratherapeutic INR. Reduction in total, major and minor bleeding events between the intervention and control groups at 90 days after discharge. Major bleeding events were reduced from 10% to 2% and total bleeding events 36% comaped to 15% in the control and intervention groups respectively.	open-label, lack of blinding assessment for outcomes.

Disease State

Anticoagulation

Reference

Witt, Daniel M. , 2005, Chest, ; 127: 1515-1522

Title

Effect of a Centralized Clinical Pharmacy Anticoagulation Service on the Outcomes of Anticoagulation Therapy

Evidence Grading	E3-2	Concurrent control or cohort
Study Type	Concurrent control or cohort	
Target	Management and/or improving risk & monitoring response	
Source Type	Manual Search	
Outcome Types	Clinical	
Setting	Community	
TimeFrame	6 months	
Country	UNITED STATES	
Concurrent control or cohort		
1 <input checked="" type="checkbox"/> Was the selection of the subjects for the new intervention adequate ?		
2 <input checked="" type="checkbox"/> Was the selection of the subjects for the comparison or control group adequate ?		
3 <input type="checkbox"/> Did the study adequately control for demographic characteristics, clinical features and other potential confounding variables in the design or analysis?		
4 <input type="checkbox"/> Was the measurement of outcomes unbiased (ie blinded to treatment group and comparable across groups)?		
5 <input checked="" type="checkbox"/> Was follow-up long enough for outcomes occur?		
6 <input checked="" type="checkbox"/> Was the follow-up complete enough for appropriate interpretation ?		

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
A retrospective concurrent cohort study comparing the clinical outcomes associated with anticoagulation therapy provided by a clinical pharmacy anticoagulation service (CPAS) compared to usual care. A total of 6,645 patients receiving warfarin were included in the analysis (3,323 intervention; 3,322 control). All patients were managed within a large nonprofit group-model health maintenance organisation in the US (Kaiser-Permanente).	Anticoagulation therapy for patients in the intervention group was managed by a centralised, telephonic CPAS. Control group patients were managed by physicians (usual care). CPAS consisted of a team of pharmacists and technicians with specialised skills in the management of anticoagulation. CPAS communicated with patients via telephone and mail and acts as the agent of the referring physician and facilitated all aspects of anticoagulant therapy, including patient education, ordering of pathology tests, adjustment of doses, planning for interruption of anticoagulant therapy during invasive procedures and management of adverse events. All activities were documented in a comprehensive computerised patient management system.	Primary outcome was the occurrence of anticoagulation related complications (major bleed, thromboembolism or fatal event). A secondary outcome was the control of INR (time spent in range).	Patients in the CPAS group had a complication rate of 3.26% per patient year compared to 5.19% in the control group (NS). Improved outcomes were driven by improved INR control (63.5% of time in range for intervention group vs, 55.2% in the control group, p < 0.001).	Blinding of outcome assessors did not occur, some differences in sex and indication for anticoagulation between groups. Reasons for referral to CPAS not mentioned, nor are demographics for other medical conditions at baseline. It cannot be ruled out from the paper that patients more likely to benefit from CPAS were referred to it by physicians, who maintained management of more complicated patients.

Disease State		Anticoagulation		
Reference	Witt, Daniel M., 2003, Journal of Thrombosis and Thrombolysis, ; 15: 113-118			
Title	A Retrospective Evaluation of the Management of Excessive Anticoagulation in an Established Clinical Pharmacy Anticoagulation Service Compared to Traditional Care			
Evidence Grading		E3-3	Historical control	
Study Type		Historical control		
Target		Management and/or improving risk & monitoring response		
Source Type		Manual Search		
Outcome Types		Clinical		
Setting		Community		
TimeFrame		6 months		
Country		UNITED STATES		
Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Historical cohort study comparing the outcomes associated with episodes of excessive anticoagulation (INR > 6.0) managed by physicians in a group model health maintenance organisation (historical cohort) compared to patients managed by a centralised telephone-follow-up clinical pharmacy anticoagulation service (CPAS-intervention cohort). 313 episodes occurring in the intervention cohort were compared to 301 in the historical cohort.	Anticoagulation therapy for patients in the intervention group was managed by a centralised, telephonic CPAS. Control group patients were managed by physicians (usual care). CPAS consisted of a team of pharmacists and technicians with specialised skills in the management of anticoagulants. CPAS communicated with patients via telephone and mail and acts as the agent of the referring physician and facilitated all aspects of anticoagulant therapy, including patient education, ordering of pathology tests, adjustment of doses, planning for interruption of anticoagulant therapy during invasive procedures and management of adverse events. All activities were documented in a comprehensive computerised patient management system.	Outcomes included major and minor bleeding, thrombosis, use of vitamin K and refractoriness to continued warfarin therapy.	6.3% of patients in the control group experienced major bleeding compared to 1.3% in the CPAS group (P = 0.001). Vitamin K was administered more frequently in the control compared to intervention group (17.0% vs. 6.4%, respectively; p < 0.001). Minor bleeding also occurred less frequently in the CPAS group (6.7% vs. 14.3%, P=0.003).	Significant differences between the control and intervention groups in age, indications for anticoagulation target INR range may have resulted in a bias favouring the intervention group. Reason for referral to CPAS in not mentioned and may have resulted in the treatment of easier to manage patients in the CPAS group.

Disease State

Asthma

Reference

Bheekie, A., 2001, J Clin Pharm Ther, ; 26: 287-96

Title

Peak expiratory flow rate and symptom self-monitoring of asthma initiated from community pharmacies

Evidence Grading	E3-1	Pseudorandomised controlled trials D Randomisation not mentioned D Analysis by treatment received AND no mention of withdrawals OR more than 15% withdrawals/loss-to-follow-up/post-randomisation exclusions C Blinding not done A All patients had standardised assessment
Study Type	Pseudorandomised controlled trials	
Target	Management and/or improving risk & monitoring response	
Outcome Types	Surrogate	
Setting	Community	
TimeFrame	2 months	
Country	SOUTH AFRICA	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
A pseudorandomised trial comparing 2 methods of asthma management initiated from 5 South African community pharmacies. 110 patients over the age of 6 were alternately allocated to two active self-monitoring groups. 61 patients completed 2-months of self-monitoring; 21 patients were allocated to a symptom-based self-monitoring group and 40 patients were allocated to a PEFr self-monitoring group.	Patients performing symptom monitoring used a visual analogue scale to assess symptoms, whereas those in the PEFr monitoring group assessed symptoms and used a pocket-sized peak flow meter to measure lung function. Both groups were required to adhere to an individualised management plan based on guideline recommendations and to record their monitored data in a diary card for 2 months. Community pharmacists recruited patients and promoted self-monitoring of asthma.	Average monthly frequency of appropriate patients responses based on their adherence to the self-management plan. Appropriate use of medication and need for medical consultation were assessed.	The average monthly frequency of appropriate responses in the PEFr group was significantly higher than that of patients in the symptom managed group (0.76 vs. 0.53, P < 0.006). Patients managing their asthma in the symptom monitoring group had an increased frequency of inappropriate medication use compared to the PEFr group.	Community pharmacists were not involved in the training or assessment of patients, however they did promote asthma control and recruited patients. No usual care control group.

Disease State		Asthma			
Reference	Cordina, M., 2001, Pharmacotherapy, ; 21: 1196-203				
Title	Assessment of a community pharmacy-based program for patients with asthma				
Evidence Grading		E2	Randomised Controlled Trial C Randomisation claimed but not described and investigator not blinded D Analysis by treatment received AND no mention of withdrawals OR more than 15% withdrawals/loss-to-follow-up/post-randomisation exclusions C Blinding not done A All patients had standardised assessment		
Study Type	Randomised Controlled Trial				
Target	Management and/or improving risk & monitoring response				
Outcome Types	Clinical				
Setting	Community				
TimeFrame	12 months				
Country	MALTA				
Study Characteristics		Intervention	Outcome Measures	Key Findings	Limitations
Randomised controlled trial of a comprehensive asthma education and monitoring program in 22 community pharmacies (11 control, 11 intervention) in Malta with follow-up to 12 months. 152 patients were enrolled in the program, 86 in the intervention group and 66 in the control group.		Pharmacists received a manual on the pathophysiology of asthma and went to a training session regarding asthma management. Patients went to the pharmacy on a monthly basis and the pharmacist inquired about their symptoms and progress. Suggested treatment changes were made to the patients physician.	Health-related quality of life, peak expiratory flow (PEFR), inhaler technique, compliance, hospitalisation rates, asthma symptoms and patient satisfaction.	No changes in health related quality of life. No real changes in peak flow recordings. No difference in inhaler technique or compliance at 12 months. No difference in healthcare utilisation, was some differences in patients satisfaction of services favouring the intervention group.	The recruitment of patients was not a random process, which may bias some of the results. There was a dropout rate of nearly 20% within the first four months (most were in the intervention group, 73%). The intervention group was significantly younger than controls and there was a lower proportion of men in the intervention group compared with controls.

Disease State		Asthma			
Reference	Diamond, S. A., 2001, Can Respir J, ; 8: 261-5				
Title	The impact of a nationally coordinated pharmacy-based asthma education intervention				
Evidence Grading		E4	Descriptive		
Study Type		Descriptive			
Target		Management and/or improving risk & monitoring response			
Outcome Types		Patient Relevant			
Setting		Community			
TimeFrame		30 days			
Country		CANADA			
Study Characteristics		Intervention	Outcome Measures	Key Findings	Limitations
Before and after study assessing an education program delivered by pharmacists in Canada. 4080 patients in 536 pharmacies across Canada took part in the intervention.		Pharmacists attended training sessions to improve knowledge about asthma, then on one day (national asthma day in Canada) pharmacists assessed patients asthma status, monitored inhaler technique and referred to the physician where appropriate.	Asthma symptoms, frequency of use of inhalers before and after the intervention.	Four common problems were identified through the counselling sessions: 1. inhaler technique was suboptimal in 22.2%. 2. Beta-agonists were being used more frequently than three times a week by 16.4% of patients. 3. Inhaled steroids were not being used by 21.0% of patients with poorly controlled asthma. 4. 18.0% of patients had one or more manifestations of suboptimal asthma control. Sixty percent of patients were advised to see their physician and 72% of these patients did. The frequency of reliever medication use reduced significantly in the following month (P<0.05)	Before and after study with no comparison or control group recruited. Interested patients were recruited into the program, with selction bias being an issue.

Disease State		Asthma		
Reference	Herborg, H., 2001, J Am Pharm Assoc (Wash), ; 41: 539-50			
Title	Improving drug therapy for patients with asthma--part 1: Patient outcomes			
Evidence Grading		E3-2		
Study Type	Concurrent control or cohort			
Target	Target at risk individuals			
Outcome Types	Patient Relevant			
Setting	Community			
TimeFrame	12 months			
Country	DENMARK			
<div>Concurrent control or cohort</div> <div><div>1</div><div><input checked="" type="checkbox"/></div><div>Was the selection of the subjects for the new intervention adequate?</div></div> <div><div>2</div><div><input checked="" type="checkbox"/></div><div>Was the selection of the subjects for the comparison or control group adequate?</div></div> <div><div>3</div><div><input checked="" type="checkbox"/></div><div>Did the study adequately control for demographic characteristics, clinical features and other potential confounding variables in the design or analysis?</div></div> <div><div>4</div><div><input type="checkbox"/></div><div>Was the measurement of outcomes unbiased (i.e. blinded to treatment group and comparable across groups)?</div></div> <div><div>5</div><div><input checked="" type="checkbox"/></div><div>Was follow-up long enough for outcome to occur?</div></div> <div><div>6</div><div><input type="checkbox"/></div><div>Was the follow-up complete enough for appropriate interpretation?</div></div>				
Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Prospective, controlled multicentre study in 31 community pharmacies (16 intervention, 15 control) in Denmark over 12 months. This study evaluated the effect of a pharmaceutical care program for patients with asthma. 264 patients in the intervention group and 236 patients in the control group.	Patients in the intervention group were asked to visit their pharmacist once a month during the study year. During each visit the pharmacists checked inhaler technique, peak flow results and asthma symptoms. Pharmacists in the intervention group received a manual and tools to record information regarding patients symptoms. Patients in the control group received usual care.	Asthma symptoms, health related quality of lfe, health services utilisation, asthma knowledge and antiasthma medication consumption.	Beneficial effects were seen in the following areas compared to the control group; asthma symptom days, asthma symptom status, days of sickness and asthma related quality of life. There was a decrease in both groups for satisfaction with healthcare services over the time of follow-up. There were significant differences at follow-up for knowledge of asthma and asthma medications all favouring the intervention group. The proportion of patients using inhaled corticosteroids increased from 27% to 42% in the intervention group and remained constant for the controls.	Nearly 21% of the intervention group and nearly 14% of the control group dropped out, perhaps suggesting the intervention may have been a little onerous on patients. Participation was voluntary therefore there may be some selection bias.

Disease State		Asthma			
Reference	Munzenberger, P. J., 2002, Pharmacotherapy, ; 22: 1055-62				
Title	Impact of an asthma program on the quality of life of children in an urban setting				
Evidence Grading		Descriptive			
Study Type	Descriptive				
Target	Management and/or improving risk & monitoring response				
Outcome Types	Patient Relavent				
Setting	Community				
TimeFrame	12 months				
Country	UNITED STATES				
Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations	
Descriptive study of an asthma management program for children in the United States conducted by a pharmacist in the physicians surgery. 29 patients were enrolled in the program.	Education and review of medications was provided by the pharmacist to children with asthma and they were seen at baseline, 2, 6 and 12 months.	Quality of life and asthma symptoms.	Improvement in asthma related quality of life from baseline to 12 months. There were statistically significant changes in frequency of nocturnal asthma, symptomatic days and exercise tolerance from baseline to 12-months.	Only 9 of the 29 patients were available for the one-year follow-up which may increase the potential for bias in the analysis. There was no control group, therefore results should be interpreted with caution.	

Disease State		Asthma		
Reference	Schulz, M., 2001, J Clin Pharmacol, ; 41: 668-76			
Title	Pharmaceutical care services for asthma patients: a controlled intervention study			
Evidence Grading		E3-2		
Study Type	Concurrent control or cohort			
Target	Management and/or improving risk & monitoring response			
Outcome Types	Surrogate			
Setting	Community			
TimeFrame	12 months			
Country	GERMANY			
Concurrent control or cohort		<div><div>1</div><div><input checked="" type="checkbox"/></div><div>Was the selection of the subjects for the new intervention adequate?</div></div> <div><div>2</div><div><input checked="" type="checkbox"/></div><div>Was the selection of the subjects for the comparison or control group adequate?</div></div> <div><div>3</div><div><input type="checkbox"/></div><div>Did the study adequately control for demographic characteristics, clinical features and other potential confounding variables in the design or analysis?</div></div> <div><div>4</div><div><input type="checkbox"/></div><div>Was the measurement of outcomes unbiased (i.e. blinded to treatment group and comparable across groups)?</div></div> <div><div>5</div><div><input checked="" type="checkbox"/></div><div>Was follow-up long enough for outcome to occur?</div></div> <div><div>6</div><div><input type="checkbox"/></div><div>Was the follow-up complete enough for appropriate interpretation?</div></div>		
Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Concurrent cohort study evaluating the effectiveness of community-pharmacy based interventions on lung function, health-related quality of life and self-management in asthma patients. The study was conducted by trained pharmacists in 26 intervention community pharmacies. 22 other pharmacies served as controls. Intervention pharmacies recruited 161 patients while 81 control patients were recruited. Participants were followed for a 12-month period, with 101 and 63 patients from the intervention and control groups, respectively, completing the intervention.	Intervention pharmacists were trained to provide pharmaceutical care which involved medical, pharmaceutical, pharmacology, communication skills and the use of the study protocol. Pharmacists met with intervention patients at 6-week intervals within the 12-month follow-up period. The pharmacists assessed inhaler technique, and monitored for drug or health related issues. These were solved in cooperation with the physician and patient. Patients were instructed in the use of PEFr meters and completed an asthma diary.	Change in lung function as assessed by FEV1 and PEF, SF-36 and German Living with asthma Questionnaire were applied.	No statistically significant change was noted with respect to lung function. Knowledge of asthma and drug therapy was improved in the intervention group at 12-months. Self-efficacy was improved in the intervention group at 6 (p = 0.19) and 12 months (p = 0.001). In the intervention group, inhaler technique, asthma-specific quality of life and mental health summary score improved significantly.	There were some differences in baseline data between the groups with respect to asthma type and type of physician treating asthma. A high proportion of subjects withdrew from the study.

Disease State		Breast Cancer Prevention		
Reference	Giles, J. T., 2001, Pharmacotherapy, ; 21: 243-53			
Title	Results of a community pharmacy-based breast cancer risk-assessment and education program			
Evidence Grading		E4	Descriptive	
Study Type		Descriptive		
Target		General Education of Population		
Outcome Types		Patient Relevant		
Setting		Community		
TimeFrame		6 months		
Country		UNITED STATES		
Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Before and after study assessing an education program provided by community pharmacies to improve breast cancer screening schedules and modalities coupled with a breast cancer risk assessment. The study was conducted in six community pharmacies and 2 health-screening fairs and recruited 140 women over the age of 18.	The pharmacist-administered program used the breast cancer risk assessment tool software provided by the National Cancer Institute of the National Institutes of Health. In addition, pharmacists provided education and training on breast self-examination (BSE), clinical breast examination (CBE) and mammography.	Adherence to American Cancer Society (ACS) guidelines for monthly breast self examination, confidence in performing BSE, adherence to ACS guidelines for CBE and mammography.	Adherence to monthly BSE increased from 31% to 56% (P < 0.001) for all women 6-months after the program. Performance of monthly BSE by women considered at high risk of developing breast cancer increased from 20% to 60% (P < 0.005). The mean number of BSEs performed in 6-months increased from 2.7 to 4.1 (P < 0.001). Women's confidence performing correct BSE improved from 6.4 to 7.0 (P < 0.001) on a scale of 0-10. Adherence ACS guidelines for CBE and mammography did not reveal stastically significant differences except for women aged 40-49 years.	Only 6-month outcomes available, no data on incidence of clinical outcomes or detection of cancer.

Disease State		Diabetes Management			
Reference	Armour, C. L., 2004, J Am Pharm Assoc (Wash DC), ; 44: 455-66				
Title	Implementation and evaluation of Australian pharmacists' diabetes care services				
Evidence Grading		E3-2			
Study Type	Concurrent control or cohort			<div>Concurrent control or cohort</div> <div>1 <input checked="" type="checkbox"/> Was the selection of the subjects for the new intervention adequate?</div> <div>2 <input checked="" type="checkbox"/> Was the selection of the subjects for the comparison or control group adequate?</div> <div>3 <input type="checkbox"/> Did the study adequately control for demographic characteristics, clinical features and other potential confounding variables in the design or analysis?</div> <div>4 <input type="checkbox"/> Was the measurement of outcomes unbiased (i.e. blinded to treatment group and comparable across groups)?</div> <div>5 <input checked="" type="checkbox"/> Was follow-up long enough for outcome to occur?</div> <div>6 <input type="checkbox"/> Was the follow-up complete enough for appropriate interpretation?</div>	
Target	Target at risk individuals				
Outcome Types	Surrogate				
Setting	Community				
TimeFrame	9 months				
Country	AUSTRALIA				
Study Characteristics		Intervention	Outcome Measures		Key Findings
Concurrent cohort study to evaluate the outcome of a specialised service for type-2 diabetics in community pharmacy compared to usual care. Patients recruited from 3 intervention and 3 control sites were followed for 9-months. A total of 106 intervention and 82 control patients completed the study.		Following training, pharmacists followed a clinical protocol over 9-months, with monthly intervention site visits during which blood glucose readings were discussed with patients, interventions were documented and treatment targets were set.	Change in glycosylated haemoglobin from baseline, quality of life and risk of non-adherence.	HbA1c was significantly reduced from baseline in the intervention group. The percentage of patients with HbA1c above 7 was reduced from 72% to 53% at the end of the study in the intervention group. Mean HbA1c was reduced significantly (7.9 to 7.4, P = 0.02) in the intervention group with no change in the control population. Quality of life measures improved in the intervention group (P = 0.04) but not in the control group. The risk of non-adherence also decreased in the intervention population (P < 0.001).	Patients in the control group had superior mean HbA1c compared to the intervention group (7.4 compared to 7.9) at baseline, indicating that populations were not adequately matched at baseline. Mean HbA1c was the same in each group after the intervention period. 21% of patients were lost to follow-up and outcomes were not blinded across groups.

Disease State		Cardiovascular Disease			
Reference	Ditusa, L., 2001, Am J Manag Care, ; 7: 973-9				
Title	A pharmacy-based approach to cholesterol management				
Evidence Grading		E3-2			
Study Type	Concurrent control or cohort			<div>Concurrent control or cohort</div> <div>1 <input checked="" type="checkbox"/> Was the selection of the subjects for the new intervention adequate ?</div> <div>2 <input type="checkbox"/> Was the selection of the subjects for the comparison or control group adequate ?</div> <div>3 <input type="checkbox"/> Did the study adequately control for demographic characteristics, clinical features and other potential confounding variables in the design or analysis?</div> <div>4 <input type="checkbox"/> Was the measurement of outcomes unbiased (ie blinded to treatment group and comparable across groups)?</div> <div>5 <input checked="" type="checkbox"/> Was follow-up long enough for outcomes occur?</div> <div>6 <input checked="" type="checkbox"/> Was the follow-up complete enough for appropriate interpretation ?</div>	
Target	Target at risk individuals				
Source Type	MEDLINE				
Outcome Types	Surrogate				
Setting	Community				
TimeFrame	6-months				
Country	UNITED STATES				
Study Characteristics		Intervention	Outcome Measures		Key Findings
A prospective cohort study involving 450 patients with cardiovascular disease at a managed care organisation. 300 patients were enrolled in a pharmacy based cholesterol program, while 150 patients served as a control group.		As patients visited the pharmacy, with a history of MI, CVD, PVD, IHD or surgical revascularisation they were recruited into the study. Pharmacists then were responsible for reviewing the patient's medication chart, pharmacy record and laboratory data to assess clinical status and cholesterol profile when available. Pharmacists made recommendations based on agreed guidelines (NCEP) and received a formal training program. Standard letters were sent to physicians as recommendations were made regarding appropriate monitoring and changes to medication therapy. Pharmacists then implemented these changes following approval from the treating physician. Patients were provided with medication counselling regarding the role of cholesterol in CVD, discussed medication adherence, diet and lifestyle advice and ensured appropriate laboratory monioting. The pharmacist was also responsible for referring the patient to nutritional classes, individual consults with dieticians and diabetic teaching where necessary. Cholesterol management was assessed at baseline and during a 1-year follow-up period.	Achievement of target lipid levels, receipt of cholesterol medication and the proportion receiving appropriate cholesterol monitoring.	The percentage of patients achieving target LDL levels increased from 45% to 72% (p<0.01) in the intervention group compared to 33% to 43% in control patients (p=0.26). 99% of pharmacist recommendations were implemented by physicians in the intervention group.	The number of patients lost to follow-up is not provided. The method of randomly identifying control patients is not described. The control group was made up of patients, selected from the group treated by physicians that did not consent for their patients to be managed in the pharmacy.

Disease State		Cardiovascular Disease		
Reference	Donaldson, A. R., 2004, Am J Health Syst Pharm, ; 61: 493-7			
Title	Pharmacist-run lipid management program in rural Alabama			
Evidence Grading	E4	Descriptive		
Study Type	Descriptive			
Target	Target at risk individuals			
Source Type	MEDLINE			
Outcome Types	Surrogate			
Setting	Community			
Country	UNITED STATES			
Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Descriptive study of a pharmacist run mobile lipid management clinic in rural United States. Twenty-two patients were enrolled in the program	The pharmacist conducted lipid testing and gave education to the participants and physician referral to the clinic was needed. Monthly follow-up was conducted with lipid tests and education conducted.	Descriptive	No findings of note	Small number of patients, intensive and costly program, no control group. Outcomes were unable to be assessed due to cancellation of the clinic

Disease State		Cardiovascular Disease		
Reference	Geber, J, 2002, Pharmacotherapy, ; 22: 738-747			
Title	Optimizing Drug Therapy in Patients with Cardiovascular Disease: The Impact of Pharmacist-Managed Pharmacotherapy Clinics in a Primary Care Setting			
Evidence Grading		E3-2		
Study Type	Concurrent control or cohort			Concurrent control or cohort 1 <input checked="" type="checkbox"/> Was the selection of the subjects for the new intervention adequate ? 2 <input checked="" type="checkbox"/> Was the selection of the subjects for the comparison or control group adequate ? 3 <input checked="" type="checkbox"/> Did the study adequately control for demographic characteristics, clinical features and other potential confounding variables in the design or analysis? 4 <input checked="" type="checkbox"/> Was the measurement of outcomes unbiased (ie blinded to treatment group and comparable across groups)? 5 <input checked="" type="checkbox"/> Was follow-up long enough for outcomes occur? 6 <input type="checkbox"/> Was the follow-up complete enough for appropriate interpretation ?
Target	Target at risk individuals			
Source Type	Manual Search			
Outcome Types	Surrogate			
Setting	Outpatient			
Country	UNITED STATES			
Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
A retrospective cohort study of 146 patients in the United Sates, of which 74 were managed by a pharmacist-managed clinic. The study population comprised patients who were treated for cardiovascular disease in primary care clinics. Patients were included if they had coronary artery disease and baseline LDL levels above 100 mg/dL.	This was a retrospective study of patients with cardiovascular disease. A randomised list of patients was created and the first 75 patients managed by primary care physicians formed the control cohort and the first 75 patients that were managed by a clinical pharmacy outpatient clinic formed the intervention group. Primary care providers had the option to refer patients to the pharmacy managed clinic. Pharmacists had the power to commence, adjust or discontinue drugs, as well as order and interpret laboratory tests as necessary.	The percenage of patients achieving target LDL, change in lipid values between groups, percentage of patients treated with antiplatelet agents or antihyperlipidaemic therapy. Secondary endpoints included the proportion of suitable patients receiving recommended dosages of ACE inhibitors, and the number of cardiovascular events experienced.	Appropriate treatment of hyperlipidaemia occurred more frequently in the pharmacist managed group (96% vs 68%; p < 0.0001). Appropriate use of ACE inhibitors was significantly improved in pharmacist-managed patients (89% vs 69%; p < 0.05).	The study was retrospective and thus did not allow randomisation into two groups. There was no reference made to reasons for referral to the pharmacist-managed care, this may have allowed for bias in the type of patients referred to the pharmacist-managed clinic. Similar reductions in lipid levels in the two groups.

Disease State

Cardiovascular Disease

Reference

Hourihan, F., 2003, Australian Journal of Rural Health, ; 11: 28-35

Title

Rural community pharmacy: a feasible site for a health promotion and screening service for cardiovascular risk factors

Evidence Grading	E4	Descriptive
Study Type	Descriptive	
Target	Target at risk individuals	
Source Type	MEDLINE	
Outcome Types	Surrogate	
Setting	Community	
Country	AUSTRALIA	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Cardiovascular risk factor screening in four pharmacies in rural Australia. Description of study findings from 204 screened participants. Screening was conducted over three to four months and patients returned at three months for reassessment.	Pharmacists screened patients for cardiovascular risk factors (cholesterol, blood pressure, body mass index, and provided information on a healthy lifestyle. Pharmacists also provided appropriate referral dependant on results of the screening tests.	Identification of modifiable cardiovascular risk factors.	Over 50% of screened participants had elevated cholesterol levels and thirty percent required referral to the GP. Nearly 20% of patients had elevated BP recordings and nearly 90% had at least one modifiable cardiovascular risk factor.	There was no data displayed about the outcome of referral or the outcome of the intervention from baseline

Disease State		Cardiovascular Disease			
Reference	Paulós, C., 2005, Ann Pharmacother, ; 39: xxx-xxx				
Title	Impact of a Pharmaceutical Care Program in a Community Pharmacy on Patients with Dyslipidemia				
Evidence Grading		E2	Randomised Controlled Trial C Randomisation claimed but not described and investigator not blinded A Intention to treat analysis AND full follow-up C Blinding not done A All patients had standardised assessment		
Study Type	Randomised Controlled Trial				
Target	Management and/or improving risk & monitoring response				
Source Type	Manual Search				
Outcome Types	Patient Relavent				
Setting	Outpatient				
TimeFrame	16 weeks				
Country	CHILE				
Study Characteristics		Intervention	Outcome Measures	Key Findings	Limitations
Randomised controlled trial in one community pharmacy in Chile, Forty two patients were recruited when they purchased medication or requested lipid studies (a service provided by the pharmacy). 23 patients were randomised to the intervention and 19 to the control group. Follow-up was for 16 weeks.		Intervention group received a comprehensive pharmaceutical plan and scheduled follow-up for five times in 16 weeks (including baseline). Lipids were measured at the 1st, 3rd and 5th visits and education delivered at each interview. The control group received standard pharmaceutical care.	Reduction in lipid measurements, body mass index, drug related problems (DRPs) and SF-36.	Significant reduction in cholesterol levels in the intervention group (205.1mg/dL to 178.1mg/dL P<0.03) compared to the control group (203.2mg/dL to 199.1mg/dL P<0.66). Also a significant decrease in trigylcerides in the intervention group (P=0.01) with no change in the control group (P=0.14). Significant reduction in weight in the intervention group (loss of 1kg, P<0.02) with no change in the control group. 24 of 26 (92%) DRPs in the intervention group were solved compared to 5 of 26 (19%) without intervention in the control group. Significant change in the SF-36 index at the end of the study favouring the intervention group.	Small number of patients, blinding and randomisation not specified.

Disease State		Cardiovascular Disease			
Reference	Reilly, V., 2003, Pharmacy World Sci, ; 25: 294-8				
Title	The clinical and economic impact of a secondary heart disease prevention clinic jointly implemented by a practice nurse and pharmacist				
Evidence Grading		E4	Descriptive		
Study Type		Descriptive			
Target		Management and/or improving risk & monitoring response			
Source Type		Cochrane			
Outcome Types		Surrogate			
Setting		Community			
Country		UNITED KINGDOM			
Study Characteristics		Intervention	Outcome Measures	Key Findings	Limitations
Descriptive study of the effect of a pharmacist identifying and monitoring patients at risk of CVD in general practice in the the West of Scotland. 212 patients had been through the clinic at the time of writing. The intervention program was evaluated over 30 months.		The pharmacist identified patients with or at risk of CVD by searching the electronic records of the practice computer program. These patients were then invited to attend an intial appointment. A practice nurse took a detailed history and ordered a number of blood tests (cholesterol, TFTs, FBC etc.). The patient then returned to discuss the outcome of the tests with the pharmacist and practice nurse and medication related suggestions were then made to the doctor.	Target cholesterol levels, aspirin use and blood pressure.	Improvement in the use of aspirin (39% vs 92%) P<0.001, levels of total cholesterol above 5mmol/L were reduced from 70% to 43% (P<0.001). Blood pressure above 140/85 was reduced from 44% to 31% (P=0.03) and 37% to 15% respectively (P<0.0001)	This study evaluated the effect of a pharmacist within a general practice delivering the intervention. Caution should be exercised if the results are extrapolated to community pharmacy. The evaluation of the program was undertaken by using the first 100 patients compared to the final cohort of 212 patients. There was no control group to evaluate the effectiveness of the program.

Disease State

Cardiovascular Disease

Reference

Rothman, Russell L., 2005, The American Journal of Medicine, ; 118: 276-284

Title

A randomized trial of a primary care based disease management program to improve cardiovascular risk factors and glycated hemoglobin levels in patients with diabetes management program to improve cardiovascular risk factors and glycated hemoglobin levels in patients with diabetes

Evidence Grading	E2	Randomised Controlled Trial A Correct blinded randomisation method described OR randomised double-blind method stated AND group similarity documented C Analysis by treatment received only OR no mention of withdrawals C Blinding not done A All patients had standardised assessment
Study Type	Randomised Controlled Trial	
Target	Management and/or improving risk & monitoring response	
Source Type	Manual Search	
Outcome Types	Clinical	
Setting	Community	
TimeFrame	12 months	
Country	UNITED STATES	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Randomised controlled trial of 217 patients with type 2 diabetes and poor glycaemic control (HbA1c level 8.0%) was conducted at an academic general medicine practice in the United States over 12 months. Patients were referred to the study by their general practitioner.	Intervention patients received intensive management from clinical pharmacists, as well as from a diabetes care coordinator who provided diabetes education, applied algorithms for managing glucose control and decreasing cardiovascular risk factors. Pharmacists were in contact with patients (telephone or face to face) every two-four weeks. Control patients received a one-time management session from a pharmacist followed by usual care from their primary care provider.	Primary outcomes included blood pressure, A1C level, cholesterol level, and aspirin use. Secondary outcomes included diabetes knowledge, satisfaction, use of clinical services, and adverse events.	For the 194 patients (89%) with 12-month data, the intervention group had significantly greater improvement than did the control group for systolic blood pressure (9 mmHg, P=0.008) and HbA1c level (0.8%, P=0.05)) Change in total cholesterol level was not significant. At 12 months, aspirin use was 91% in the intervention group versus 58% among controls (P<0.0001). No change in cholesterol levels or statin use.	Some baseline differences between patients (more african-american and older patients in the control group).

Disease State

Cardiovascular Disease

Reference

Tsuyuki, R. T., 2002, Arch Intern Med, ; 162: 1149-55

Title

A randomized trial of the effect of community pharmacist intervention on cholesterol risk management: the Study of Cardiovascular Risk Intervention by Pharmacists (SCRIP)

Evidence Grading	E2	Randomised Controlled Trial A Correct blinded randomisation method described OR randomised double-blind method stated AND group similarity documented B Intention to treat analysis AND <15% loss to follow-up C Blinding not done A All patients had standardised assessment
Study Type	Randomised Controlled Trial	
Target	Target at risk individuals	
Source Type	MEDLINE	
Outcome Types	Surrogate	
Setting	Community	
TimeFrame	16 weeks	
Country	CANADA	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Randomized, multicenter trial comparing a program of pharmacist intervention with usual care in 54 community pharmacies in the provinces of Alberta and Saskatchewan. Follow-up was for sixteen weeks. Patients were approached for entry into the study if they were at high risk for cardiovascular events. This included patients with atherosclerotic vascular disease, including previous myocardial infarction, unstable angina, stable angina, coronary revascularization, or cerebral or peripheral vascular disease. Patients with diabetes mellitus and at least 1 other cardiovascular risk factor (cigarette smoking, hypertension, family history of cardiovascular events, obesity, sedentary lifestyle, hypercholesterolemia, or age >45yr for men or age>55 years for women) were also included. Representing a group of patients with an annual cardiovascular event rate of at least 5% per year.	Patients were randomized to receive either intervention or usual care. The usual care group received a booklet on heart attack and stroke. The intervention group received education on cardiovascular risk factors. The patient was encouraged to make an appointment with his or her primary care physician for further cardiovascular risk assessment, if necessary. To facilitate this, the pharmacist completed and faxed a single-page form to the physician. This form documented the patient's modifiable and nonmodifiable risk factors, medications, serum total cholesterol level, blood pressure, and any suggestions for further testing or management. The intervention group received follow-up visits at 2, 4, 8, 12, and 16 weeks. These visits were performed either in person or by telephone (at the discretion of the pharmacist) and were intended to ensure that the patients had visited their physician, to provide further education on cardiovascular risk factors, to make further suggestions to the patient or physician, to assess and reinforce adherence to medications, to answer any questions from the patient, and to determine whether study end points had been reached. The final visit (at 16 weeks) was conducted in person to measure the patient's cholesterol level and blood pressure.	The primary end point was a composite measure representing improvement in the process of cholesterol risk management. It consisted of measurement of a complete fasting cholesterol test by the primary care doctor or prescription of a new cholesterol-lowering medication or an increase in dosage of a cholesterol-lowering medication. Humanistic outcomes were also assessed	Study was terminated early due to overwhelming benefit of the program. The primary end point was reached in 57% of the intervention group 31% of the usual care group P<.001. The secondary end point of measurement of a fasting cholesterol panel performed by the primary care physician was attained in 53% of patients in the intervention group vs 29% in usual care group P<.001. The end point of new prescription for a cholesterol-lowering medication was attained in 10% of patients in the intervention group vs 4% in the usual care group P<.003. The end point of increased dose of an existing cholesterol-lowering medication was attained in 3% of patients in the intervention group vs 1% in the usual care group P = .07.	No clinical outcomes were assessed.

Disease State

Cardiovascular Disease

Reference

Tsuyuki, R. T., 2004, Am J Med, ; 116: 130-3

Title

Effect of community pharmacist intervention on cholesterol levels in patients at high risk of cardiovascular events: the Second Study of Cardiovascular Risk Intervention by Pharmacists (SCRIP-plus)

Evidence Grading	E4	Descriptive
Study Type	Descriptive	
Target	Target at risk individuals	
Source Type	MEDLINE	
Outcome Types	Surrogate	
Setting	Community	
TimeFrame	6 months	
Country	CANADA	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Before and after trial comparing a program of pharmacist intervention with usual care in 42 community pharmacies in six provinces in Canada. Follow-up was for sixteen weeks. Patients were approached for entry into the study if they were at very high risk for cardiovascular events. This included a history of coronary artery disease, coronary revascularisation, peripheral vascular disease, or cerebrovascular disease, presence of diabetes or a 10-year framingham risk score of >30%. Patients were followed up for six months.	Screening of cholesterol at the pharmacy, risk factor assessment and recommendations for therapeutic interventions were faxed to the primary care doctor.	Change in LDL cholesterol between baseline and six months.	Primary endpoint change in cholesterol of - 0.5mmol/L (3.5mmol/L to 3.0mmol/L P<0.0001).	Descriptive study with control group. 14% loss to follow-up. Exclusions comprised dose change of lipid lowering therapy in the last six months.

Disease State

Cholesterol Management

Reference

Ali, F., 2003, Can J Clin Pharmacol, ; 10: 101-6

Title

The effect of pharmacist intervention and patient education on lipid-lowering medication compliance and plasma cholesterol levels

Evidence Grading	E4	Descriptive
Study Type	Descriptive	
Target	Target at risk individuals	
Source Type	MEDLINE	
Outcome Types	Surrogate	
Setting	Community	
TimeFrame	6-months	
Country	CANADA	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Historically controlled study of the effect of pharmacist education on 149 non-compliant patients from 7 pharmacies on lipid-lowering therapy in Quebec and followed up for six months.	Pharmacist education regarding lipid disorders, benefits of compliance and lifestyle modifications for CVD at 2-month intervals for 6-month study period.	Prescription renewal rates and plasma lipid levels were measured at baseline and at the end of follow-up.	15.3% increase in number of compliant patients, 11-day reduction in the average days to prescription renewal. Reductions of TC, triglycerides and LDL by 6%, 16.2% and 8.5%, respectively.	Definition of non-compliance based on records at 1 pharmacy-may have used another pharmacy and thus been compliant. Over one-third of patients lost to follow-up (selection of compliant patients).

Disease State		Cholesterol Management		
Reference	Cording, M. A., 2002, Ann Pharmacother, ; 36: 892-904			
Title	Development of a pharmacist-managed lipid clinic			
Evidence Grading	E4	Descriptive		
Study Type	Descriptive			
Target	Target at risk individuals			
Outcome Types	Surrogate			
Setting	Community			
TimeFrame	12 months			
Country	UNITED STATES			
Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Descriptive study of the development of a pharmacist managed lipid clinic within a primary care medical clinic. Outcomes of 15 patients who were seen in the clinic and met inclusion criteria (baseline lipid panel taken, 1 initial intervention by a pharmacist and a follow-up lipid panel) were described.	A pharmacist-managed lipid clinic was developed at Naval medical Center, San Diego. Pharmacists obtained medical history for review and discussed the role of the clinic with the patient. Pharmacists ordered lipid tests and managed treatment interventions including lifestyle modification and drug therapy. Education and advice on lifestyle was provided. Pharmacological therapy was initiated according to pre-specified algorithms. Patients attended the clinic every 4 weeks to 6 months depending on progress.	Proportion of patients receiving lipid-lowering medication, LDL, HDL and triglyceride level, achievement of target lipid goals.	After 12-months of operation 57% of patients were taking HMG-CoA reductase inhibitors, 17% received fibrates and 17% of patients were lifestyle managed. Relative to baseline levels, LDL cholesterol decreased 20%, HDL increased 11% and triglycerides reduced 19%. Overall lipid goals were achieved in 77% of patients.	Significance of outcomes is not assessed. Only patients with an initial intervention by the pharmacist were evaluated, potential selection of more receptive subjects. Caution with extrapolation of this program to community pharmacy as was conducted within a primary care clinic. Patients were referred to the clinic by the physician or nurse practitioner, therefore there may be some selection bias involved in the process.

Disease State

Cholesterol Management

Reference

Cranor, C. W., 2003, J Am Pharm Assoc (Wash), ; 43: 149-59

Title

The Asheville Project: short-term outcomes of a community pharmacy diabetes care program

Evidence Grading	E4	Descriptive
Study Type	Descriptive	
Target	Target at risk individuals	
Source Type	MEDLINE	
Outcome Types	Surrogate	
Setting	Community	
TimeFrame	9-12 months	
Country	UNITED STATES	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Descriptive study of 85 patients with diabetes attending consultations with a community pharmacist regarding their diabetes and other concurrent cardiovascular risks. The intervention was studied in 2 cohorts, each receiving the intervention over 7-9 months. Two large employers in Ashville, New Caledonia,	Pharmacists employed by 12 pharmacies enrolled in the Asheville Project provided diabetes education, home glucose monitor training and information about medication adherence. Subjects were also provided with physical assessment of subjects' feet, skin, blood pressure, weight and lipid management. Subjects were offered the opportunity to meet monthly with the pharmacist.	Change from baseline in HbA1c, serum lipids, health-related Qol, satisfaction with pharmacy services, healthcare utilisation and costs.	The average number of visits per patients was 3.7. The number of patients with an HbA1c in range improved significantly from baseline. Cholesterol measures did not improve from baseline. QOL did not improve despite home monitoring of blood glucose. An increase in healthcare costs (pharmacist fees and medication costs mostly).	No control group, possible self-selection of patients led to only patients more receptive to the intervention participated.

Disease State

Cholesterol Management

Reference

Cranor, C. W.;Bunting, B. A.;Christensen, D. B., 2003, J Am Pharm Assoc (Wash), ; 43: 173-84

Title

The Asheville Project: long-term clinical and economic outcomes of a community pharmacy diabetes care program

Evidence Grading	E4	Descriptive
Study Type	Descriptive	
Target	Target at risk individuals	
Outcome Types	Surrogate	
Setting	Community	
TimeFrame	5 years	
Country	UNITED STATES	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Descriptive study of a community pharmacy based care service for patients with daibetes conducted in 12 pharmacies. Patients were recruited from 2 large employers based in Asheville. Patients were offered an opportunity to participate as an expansion of their health cover. 194 patients participated in the study	Pharmacists employed by 12 pharmacies enrolled in the Asheville Project provided diabetes education, home glucose monitor training and information about medication adherence. Subjects were also provided with physical assessment of subjects' feet, skin, blood pressure, weight and lipid management. Subjects were offered the opportunity to meet monthly with the pharmacist.	Change in glycosylated haemoglobin and serum lipid concentrations and changes in diabetes-related and total medicalion utilisation over time.	Average HbA1c levels decreased at each follow-up visit, with 50% improving at each visit.There was improvement in lipid levels but these improvements were small and not significant. There were significant reductions in total medical costs over time.	Clinical data are reported as numbers of patients improving at each folow-up visit. Follow-up periods were not at standard intervals. Lack of control group to directly compare the outcomes.

Disease State		Cholesterol Management		
Reference	Ditusa, L., 2001, Am J Manag Care, ; 7: 973-9			
Title	A pharmacy-based approach to cholesterol management			
Evidence Grading		E3-2		
Study Type	Concurrent control or cohort			<div>Concurrent control or cohort</div> <div>1 <input checked="" type="checkbox"/> Was the selection of the subjects for the new intervention adequate ?</div> <div>2 <input type="checkbox"/> Was the selection of the subjects for the comparison or control group adequate ?</div> <div>3 <input type="checkbox"/> Did the study adequately control for demographic characteristics, clinical features and other potential confounding variables in the design or analysis?</div> <div>4 <input type="checkbox"/> Was the measurement of outcomes unbiased (ie blinded to treatment group and comparable across groups)?</div> <div>5 <input checked="" type="checkbox"/> Was follow-up long enough for outcomes occur?</div> <div>6 <input checked="" type="checkbox"/> Was the follow-up complete enough for appropriate interpretation ?</div>
Target	Target at risk individuals			
Source Type	MEDLINE			
Outcome Types	Surrogate			
Setting	Community			
TimeFrame	6-months			
Country	UNITED STATES			
Study Characteristics	Intervention	Outcome Measures	Key Findings	
A prospective cohort study involving 450 patients with cardiovascular disease at a managed care organisation. 300 patients were enrolled in a pharmacy based cholesterol program, while 150 patients erved as a control group.	As patients visited the pharmacy, with a history of MI, CVD, PVD, IHD or surgical revascularisation they were recruited into the study. Pharmacists then were responsible for reviewing the patient's medication chart, pharmacy record and laboratory data to assess clinical status and cholesterol profile when available. Pharmacists made recommendations based on agreed guidelines (NCEP) and received a formal training program. Standard letters were sent to physicians as recommendations were made regarding appropriate monitoring and changes to medication therapy. Pharmacists then implemented these changes following approval from the treating physician. Patients were provided with medication counselling regarding the role of cholesterol in CVD, discussed medication adherence, diet and lifestyle advice and ensured appropriate laboratory monioting. The pharmacist was also responsible for referring the patient to nutritional classes, individual consults with dieticians and diabetic teaching where necessary. Cholesterol management was assessed at baseline and during a 1-year follow-up period.	Achievement of target lipid levels, receipt of cholesterol medication and the proportion receiving appropriate cholesterol monitoring.	The percentage of patients achieving target LDL levels increased from 45% to 72% (p<0.01) in the intervention group compared to 33% to 43% in control patients (p=0.26). 99% of pharmacist recommendations were implemented by physicians in the intervention group.	The number of patients lost to follow-up is not provided. The method of randomly identifying control patients is not described. The control group was made up of patients, selected from the group treated by physicians that did not consent for their patients to be managed in the pharmacy.

Disease State		Cholesterol Management			
Reference	Donaldson, A. R., 2004, Am J Health Syst Pharm, ; 61: 493-7				
Title	Pharmacist-run lipid management program in rural Alabama				
Evidence Grading		E4	Descriptive		
Study Type		Descriptive			
Target		Target at risk individuals			
Source Type		MEDLINE			
Outcome Types		Surrogate			
Setting		Community			
Country		UNITED STATES			
Study Characteristics		Intervention	Outcome Measures	Key Findings	Limitations
Descriptive study of a pharmacist run mobile lipid management clinic in rural United States. Twenty-two patients were enrolled in the program		The pharmacist conducted lipid testing and gave education to the participants and physician referral to the clinic was needed. Monthly follow-up was conducted with lipid tests and education conducted.	Descriptive	No findings of note	Small number of patients, intensive and costly program, no control group. Outcomes were unable to be assessed due to cancellation of the clinic

Disease State

Cholesterol Management

Reference

Lee, S. S., 2004, J Clin Pharmacol, ; 44: 632-9

Title

Benefits of individualized counseling by the pharmacist on the treatment outcomes of hyperlipidemia in Hong Kong

Evidence Grading	E3-1	Pseudorandomised controlled trials D Randomisation not mentioned D Analysis by treatment received AND no mention of withdrawals OR more than 15% withdrawals/loss-to-follow-up/post-randomisation exclusions B Blinding of outcome assessor OR patient and care giver A All patients had standardised assessment
Study Type	Pseudorandomised controlled trials	
Target	Management and/or improving risk & monitoring response	
Source Type	MEDLINE	
Outcome Types	Surrogate	
Setting	Outpatient	
TimeFrame	Three months	
Country	HONG KONG	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Controlled trial in Hong Kong recruiting 59 patients of intense counselling and follow-up cholesterol monitoring for three months by a pharmacist for hyperlipidaemic patients recruited from a hospital compared with usual care.	Intense counselling consisted of tailored education at baseline, they received another visit at one month to reinforce education and assess cholesterol levels. At three months a final visit was conducted as per the one month visit.	Compliance (75% or more tablets taken), level of lipid reduction,	Compliance was assessed as 82.1% in the intervention group compared to 60.5% in the control group, P<0.05. Reduction in cholesterol was significant in both groups, magnitude was larger in the intervention group, unsure if this is statistically significant.	Randomisation was not conducted and allocation was by days of the week. Small sample size. High dropout rate (9 of 59). Reduction in cholesterol in both groups, magnitude higher in the intervention group but unsure if this is statistically significant.

Disease State		Cholesterol Management			
Reference	Paulós, C., 2005, Ann Pharmacother, ; 39: xxx-xxx				
Title	Impact of a Pharmaceutical Care Program in a Community Pharmacy on Patients with Dyslipidemia				
Evidence Grading		E2	Randomised Controlled Trial C Randomisation claimed but not described and investigator not blinded A Intention to treat analysis AND full follow-up C Blinding not done A All patients had standardised assessment		
Study Type	Randomised Controlled Trial				
Target	Management and/or improving risk & monitoring response				
Source Type	Manual Search				
Outcome Types	Patient Relavent				
Setting	Outpatient				
TimeFrame	16 weeks				
Country	CHILE				
Study Characteristics		Intervention	Outcome Measures	Key Findings	Limitations
Randomised controlled trial in one community pharmacy in Chile, Forty two patients were recruited when they purchased medication or requested lipid studies (a service provided by the pharmacy). 23 patients were randomised to the intervention and 19 to the control group. Follow-up was for 16 weeks.		Intervention group received a comprehensive pharmaceutical plan and scheduled follow-up for five times in 16 weeks (including baseline). Lipids were measured at the 1st, 3rd and 5th visits and education delivered at each interview. The control group received standard pharmaceutical care.	Reduction in lipid measurements, body mass index, drug related problems (DRPs) and SF-36.	Significant reduction in cholesterol levels in the intervention group (205.1mg/dL to 178.1mg/dL P<0.03) compared to the control group (203.2mg/dL to 199.1mg/dL P<0.66). Also a significant decrease in trigylcerides in the intervention group (P=0.01) with no change in the control group (P=0.14). Significant reduction in weight in the intervention group (loss of 1kg, P<0.02) with no change in the control group. 24 of 26 (92%) DRPs in the intervention group were solved compared to 5 of 26 (19%) without intervention in the control group. Significant change in the SF-36 index at the end of the study favouring the intervention group.	Small number of patients, blinding and randomisation not specified.

Disease State

Cholesterol Management

Reference

Peterson, G. M., 2004, J Clin Pharm Ther, ; 29: 23-30

Title

Impact of pharmacist-conducted home visits on the outcomes of lipid-lowering drug therapy

Evidence Grading	E2	Randomised Controlled Trial A Correct blinded randomisation method described OR randomised double-blind method stated AND group similarity documented C Analysis by treatment received only OR no mention of withdrawals C Blinding not done A All patients had standardised assessment
Study Type	Randomised Controlled Trial	
Target	Management and/or improving risk & monitoring response	
Source Type	MEDLINE	
Outcome Types	Surrogate	
Setting	Community	
TimeFrame	Six months	
Country	AUSTRALIA	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Randomised controlled trial of 81 patients with a cardiovascular diagnosis on discharge from hospital and receiving a lipid lowering agent. (39 intervention group and 42 control group) in Tasmania, Australia. Study was conducted for six months.	Patients in the intervention group were visited monthly at home by a pharmacist, who provided education, assessed for drug related problems and compliance and measured total blood cholesterol levels.	Cholesterol levels at baseline (6 weeks after discharge) compared to the six month cholesterol levels in the control and intervention group. Satisfaction surveys from patients and general practitioners.	No significant difference for cholesterol levels at six months between the control and intervention group, although there was a significant decline in cholesterol levels from baseline to six months in the intervention group compared to control (4.9 to 4.2 vs 4.7 to 4.4 respectively P<0.005). No changes in compliance and response from GPs and patients was favourable.	13 out of 94 were lost to follow-up. Lack of blinding of outcome assessment. Clinical outcomes were not assessed.

Disease State

Cholesterol Management

Reference

Reilly, V., 2003, Pharmacy World Sci, ; 25: 294-8

Title

The clinical and economic impact of a secondary heart disease prevention clinic jointly implemented by a practice nurse and pharmacist

Evidence Grading	E4	Descriptive
Study Type	Descriptive	
Target	Management and/or improving risk & monitoring response	
Source Type	Cochrane	
Outcome Types	Surrogate	
Setting	Community	
Country	UNITED KINGDOM	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Descriptive study of the effect of a pharmacist identifying and monitoring patients at risk of CVD in general practice in the the West of Scotland. 212 patients had been through the clinic at the time of writing. The intervention program was evaluated over 30 months.	The pharmacist identified patients with or at risk of CVD by searching the electronic records of the practice computer program. These patients were then invited to attend an initial appointment. A practice nurse took a detailed history and ordered a number of blood tests (cholesterol, TFTs, FBC etc.). The patient then returned to discuss the outcome of the tests with the pharmacist and practice nurse and medication related suggestions were then made to the doctor.	Target cholesterol levels, aspirin use and blood pressure.	Improvement in the use of aspirin (39% vs 92%) P<0.001, levels of total cholesterol above 5mmol/L were reduced from 70% to 43% (P<0.001). Blood pressure above 140/85 was reduced from 44% to 31% (P=0.03) and 37% to 15% respectively (P<0.0001)	This study evaluated the effect of a pharmacist within a general practice delivering the intervention. Caution should be exercised if the results are extrapolated to community pharmacy. The evaluation of the program was undertaken by using the first 100 patients compared to the final cohort of 212 patients. There was no control group to evaluate the effectiveness of the program.

Disease State

Cholesterol Management

Reference

Simpson, S. H., 2004, Pharmacotherapy, ; 24: 389-94

Title

Greater effect of enhanced pharmacist care on cholesterol management in patients with diabetes mellitus: a planned subgroup analysis of the Study of Cardiovascular Risk Intervention by Pharmacists (SCRIP)

Evidence Grading	E2	Randomised Controlled Trial
Study Type		
Target	Management and/or improving risk & monitoring response	
Source Type	MEDLINE	
Outcome Types	Surrogate	
Setting	Community	
TimeFrame	16 weeks	
Country	CANADA	
Randomised Controlled Trial		
A Correct blinded randomisation method described OR randomised double-blind method stated AND group similarity documented		
C Analysis by treatment received only OR no mention of withdrawals		
C Blinding not done		
A All patients had standardised assessment		

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Randomized, multicenter trial comparing a program of pharmacist intervention with usual care in 54 community pharmacies in the provinces of Alberta and Saskatchewan. Follow-up was for sixteen weeks. Patients were approached for entry into the study if they were at high risk for cardiovascular events. This included patients with atherosclerotic vascular disease, including previous myocardial infarction, unstable angina, stable angina, coronary revascularization, or cerebral or peripheral vascular disease. Patients with diabetes mellitus and at least 1 other cardiovascular risk factor (cigarette smoking, hypertension, family history of cardiovascular events, obesity, sedentary lifestyle, hypercholesterolemia, or age >45yr for men or age>55 years for women) were also included. Representing a group of patients with an annual cardiovascular event rate of at least 5% per year. 156 of the intervention group (344) and 138 of the control group (331) had diabetes.	Patients were randomized to receive either intervention or usual care. The usual care group received a booklet on heart attack and stroke. The intervention group received education on cardiovascular risk factors. The patient was encouraged to make an appointment with his or her primary care physician for further cardiovascular risk assessment, if necessary. To facilitate this, the pharmacist completed and faxed a single-page form to the physician. This form documented the patient's modifiable and nonmodifiable risk factors, medications, serum total cholesterol level, blood pressure, and any suggestions for further testing or management. The intervention group received follow-up visits at 2, 4, 8, 12, and 16 weeks. These visits were performed either in person or by telephone (at the discretion of the pharmacist) and were intended to ensure that the patients had visited their physician, to provide further education on cardiovascular risk factors, to make further suggestions to the patient or physician, to assess and reinforce adherence to medications, to answer any questions from the patient, and to determine whether study end points had been reached. The final visit (at 16 weeks) was conducted in person to measure the patient's cholesterol level and blood pressure.	The primary end point was a composite measure representing improvement in the process of cholesterol risk management. It consisted of measurement of a complete fasting cholesterol test by the primary care doctor or prescription of a new cholesterol-lowering medication or an increase in dosage of a cholesterol-lowering medication. Humanistic outcomes were also assessed. A planned subgroup analysis to compare the effect of the intervention on those with and without diabetes was undertaken. The effect of the program on the Framingham 10 year CVD risk was also undertaken.	Patients with diabetes in the intervention group compared to the control group were nearly five times more likely to reach the primary end point and those without diabetes in the intervention and control groups were twice as likely to reach the end point (P<0.01). No significant change in other parameters.	No clinical outcomes reported and small sample size to detect other changes.

Disease State

Cholesterol Management

Reference

Tsuyuki, R. T., 2002, Arch Intern Med, ; 162: 1149-55

Title

A randomized trial of the effect of community pharmacist intervention on cholesterol risk management: the Study of Cardiovascular Risk Intervention by Pharmacists (SCRIP)

Evidence Grading	E2	Randomised Controlled Trial A Correct blinded randomisation method described OR randomised double-blind method stated AND group similarity documented B Intention to treat analysis AND <15% loss to follow-up C Blinding not done A All patients had standardised assessment
Study Type	Randomised Controlled Trial	
Target	Target at risk individuals	
Source Type	MEDLINE	
Outcome Types	Surrogate	
Setting	Community	
TimeFrame	16 weeks	
Country	CANADA	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Randomized, multicenter trial comparing a program of pharmacist intervention with usual care in 54 community pharmacies in the provinces of Alberta and Saskatchewan. Follow-up was for sixteen weeks. Patients were approached for entry into the study if they were at high risk for cardiovascular events. This included patients with atherosclerotic vascular disease, including previous myocardial infarction, unstable angina, stable angina, coronary revascularization, or cerebral or peripheral vascular disease. Patients with diabetes mellitus and at least 1 other cardiovascular risk factor (cigarette smoking, hypertension, family history of cardiovascular events, obesity, sedentary lifestyle, hypercholesterolemia, or age >45yr for men or age>55 years for women) were also included. Representing a group of patients with an annual cardiovascular event rate of at least 5% per year.	Patients were randomized to receive either intervention or usual care. The usual care group received a booklet on heart attack and stroke. The intervention group received education on cardiovascular risk factors. The patient was encouraged to make an appointment with his or her primary care physician for further cardiovascular risk assessment, if necessary. To facilitate this, the pharmacist completed and faxed a single-page form to the physician. This form documented the patient's modifiable and nonmodifiable risk factors, medications, serum total cholesterol level, blood pressure, and any suggestions for further testing or management. The intervention group received follow-up visits at 2, 4, 8, 12, and 16 weeks. These visits were performed either in person or by telephone (at the discretion of the pharmacist) and were intended to ensure that the patients had visited their physician, to provide further education on cardiovascular risk factors, to make further suggestions to the patient or physician, to assess and reinforce adherence to medications, to answer any questions from the patient, and to determine whether study end points had been reached. The final visit (at 16 weeks) was conducted in person to measure the patient's cholesterol level and blood pressure.	The primary end point was a composite measure representing improvement in the process of cholesterol risk management. It consisted of measurement of a complete fasting cholesterol test by the primary care doctor or prescription of a new cholesterol-lowering medication or an increase in dosage of a cholesterol-lowering medication. Humanistic outcomes were also assessed	Study was terminated early due to overwhelming benefit of the program. The primary end point was reached in 57% of the intervention group 31% of the usual care group P<.001. The secondary end point of measurement of a fasting cholesterol panel performed by the primary care physician was attained in 53% of patients in the intervention group vs 29% in usual care group P<.001. The end point of new prescription for a cholesterol-lowering medication was attained in 10% of patients in the intervention group vs 4% in the usual care group P<.003. The end point of increased dose of an existing cholesterol-lowering medication was attained in 3% of patients in the intervention group vs 1% in the usual care group P = .07.	No clinical outcomes were assessed.

Disease State

Cholesterol Management

Reference

Tsuyuki, R. T., 2004, Am J Med, ; 116: 130-3

Title

Effect of community pharmacist intervention on cholesterol levels in patients at high risk of cardiovascular events: the Second Study of Cardiovascular Risk Intervention by Pharmacists (SCRIP-plus)

Evidence Grading	E4	Descriptive
Study Type	Descriptive	
Target	Target at risk individuals	
Source Type	MEDLINE	
Outcome Types	Surrogate	
Setting	Community	
TimeFrame	6 months	
Country	CANADA	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Before and after trial comparing a program of pharmacist intervention with usual care in 42 community pharmacies in six provinces in Canada. Follow-up was for sixteen weeks. Patients were approached for entry into the study if they were at very high risk for cardiovascular events. This included a history of coronary artery disease, coronary revascularisation, peripheral vascular disease, or cerebrovascular disease, presence of diabetes or a 10-year framingham risk score of >30%. Patients were followed up for six months.	Screening of cholesterol at the pharmacy, risk factor assessment and recommendations for therapeutic interventions were faxed to the primary care doctor.	Change in LDL cholesterol between baseline and six months.	Primary endpoint change in cholesterol of - 0.5mmol/L (3.5mmol/L to 3.0mmol/L P<0.0001).	Descriptive study with control group. 14% loss to follow-up. Exclusions comprised dose change of lipid lowering therapy in the last six months.

Disease State

Compliance

Reference

Ali, F., 2003, Can J Clin Pharmacol, ; 10: 101-6

Title

The effect of pharmacist intervention and patient education on lipid-lowering medication compliance and plasma cholesterol levels

Evidence Grading	E4	Descriptive
Study Type	Descriptive	
Target	Target at risk individuals	
Source Type	MEDLINE	
Outcome Types	Surrogate	
Setting	Community	
TimeFrame	6-months	
Country	CANADA	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Historically controlled study of the effect of pharmacist education on 149 non-compliant patients from 7 pharmacies on lipid-lowering therapy in Quebec and followed up for six months.	Pharmacist education regarding lipid disorders, benefits of compliance and lifestyle modifications for CVD at 2-month intervals for 6-month study period.	Prescription renewal rates and plasma lipid levels were measured at baseline and at the end of follow-up.	15.3% increase in number of compliant patients, 11-day reduction in the average days to prescription renewal. Reductions of TC, triglycerides and LDL by 6%, 16.2% and 8.5%, respectively.	Definition of non-compliance based on records at 1 pharmacy-may have used another pharmacy and thus been compliant. Over one-third of patients lost to follow-up (selection of compliant patients).

Disease State		Compliance		
Reference	Lee, S. S., 2004, J Clin Pharmacol, ; 44: 632-9			
Title	Benefits of individualized counseling by the pharmacist on the treatment outcomes of hyperlipidemia in Hong Kong			
Evidence Grading	E3-1	Pseudorandomised controlled trials D Randomisation not mentioned D Analysis by treatment received AND no mention of withdrawals OR more than 15% withdrawals/loss-to-follow-up/post-randomisation exclusions B Blinding of outcome assessor OR patient and care giver A All patients had standardised assessment		
Study Type	Pseudorandomised controlled trials			
Target	Management and/or improving risk & monitoring response			
Source Type	MEDLINE			
Outcome Types	Surrogate			
Setting	Outpatient			
TimeFrame	Three months			
Country	HONG KONG			
Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Controlled trial in Hong Kong recruiting 59 patients of intense counselling and follow-up cholesterol monitoring for three months by a pharmacist for hyperlipidaemic patients recruited from a hospital compared with usual care.	Intense counselling consisted of tailored education at baseline, they received another visit at one month to reinforce education and assess cholesterol levels. At three months a final visit was conducted as per the one month visit.	Compliance (75% or more tablets taken), level of lipid reduction,	Compliance was assessed as 82.1% in the intervention group compared to 60.5% in the control group, P<0.05. Reduction in cholesterol was significant in both groups, magnitude was larger in the intervention group, unsure if this is statistically significant.	Randomisation was not conducted and allocation was by days of the week. Small sample size. High dropout rate (9 of 59). Reduction in cholesterol in both groups, magnitude higher in the intervention group but unsure if this is statistically significant.

Disease State		Compliance		
Reference	Peterson, G. M., 2004, J Clin Pharm Ther, ; 29: 23-30			
Title	Impact of pharmacist-conducted home visits on the outcomes of lipid-lowering drug therapy			
Evidence Grading	E2	Randomised Controlled Trial A Correct blinded randomisation method described OR randomised double-blind method stated AND group similarity documented C Analysis by treatment received only OR no mention of withdrawals C Blinding not done A All patients had standardised assessment		
Study Type	Randomised Controlled Trial			
Target	Management and/or improving risk & monitoring response			
Source Type	MEDLINE			
Outcome Types	Surrogate			
Setting	Community			
TimeFrame	Six months			
Country	AUSTRALIA			
Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Randomised controlled trial of 81 patients with a cardiovascular diagnosis on discharge from hospital and receiving a lipid lowering agent. (39 intervention group and 42 control group) in Tasmania, Australia. Study was conducted for six months.	Patients in the intervention group were visited monthly at home by a pharmacist, who provided education, assessed for drug related problems and compliance and measured total blood cholesterol levels.	Cholesterol levels at baseline (6 weeks after discharge) compared to the six month cholesterol levels in the control and intervention group. Satisfaction surveys from patients and general practitioners.	No significant difference for cholesterol levels at six months between the control and intervention group, although there was a significant decline in cholesterol levels from baseline to six months in the intervention group compared to control (4.9 to 4.2 vs 4.7 to 4.4 respectively P<0.005). No changes in compliance and response from GPs and patients was favourable.	13 out of 94 were lost to follow-up. Lack of blinding of outcome assessment. Clinical outcomes were not assessed.

Disease State		Diabetes Management			
Reference	Cranor, C. W., 2003, J Am Pharm Assoc (Wash), ; 43: 149-59				
Title	The Asheville Project: short-term outcomes of a community pharmacy diabetes care program				
Evidence Grading		E4	Descriptive		
Study Type		Descriptive			
Target		Target at risk individuals			
Source Type		MEDLINE			
Outcome Types		Surrogate			
Setting		Community			
TimeFrame		9-12 months			
Country		UNITED STATES			
Study Characteristics		Intervention	Outcome Measures	Key Findings	Limitations
Descriptive study of 85 patients with diabetes attending consultations with a community pharmacist regarding their diabetes and other concurrent cardiovascular risks. The intervention was studied in 2 cohorts, each receiving the intervention over 7-9 months. Two large employers in Asheville, New Caledonia,		Pharmacists employed by 12 pharmacies enrolled in the Asheville Project provided diabetes education, home glucose monitor training and information about medication adherence. Subjects were also provided with physical assessment of subjects' feet, skin, blood pressure, weight and lipid management. Subjects were offered the opportunity to meet monthly with the pharmacist.	Change from baseline in HbA1c, serum lipids, health-related QoI, satisfaction with pharmacy services, healthcare utilisation and costs.	The average number of visits per patients was 3.7. The number of patients with an HbA1c in range improved significantly from baseline. Cholesterol measures did not improve from baseline. QOL did not improve despite home monitoring of blood glucose. An increase in healthcare costs (pharmacist fees and medication costs mostly).	No control group, possible self-selection of patients led to only patients more receptive to the intervention participated.

Disease State

Diabetes Management

Reference

Cranor, C. W.;Bunting, B. A.;Christensen, D. B.;, 2003, J Am Pharm Assoc (Wash), ; 43: 173-84

Title

The Asheville Project: long-term clinical and economic outcomes of a community pharmacy diabetes care program

Evidence Grading	E4	Descriptive
Study Type	Descriptive	
Target	Target at risk individuals	
Outcome Types	Surrogate	
Setting	Community	
TimeFrame	5 years	
Country	UNITED STATES	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Descriptive study of a community pharmacy based care service for patients with daibetes conducted in 12 pharmacies. Patients were recruited from 2 large employers based in Asheville. Patients were offered an opportunity to participate as an expansion of their health cover. 194 patients participated in the study	Pharmacists employed by 12 pharmacies enrolled in the Asheville Project provided diabetes education, home glucose monitor training and information about medication adherence. Subjects were also provided with physical assessment of subjects' feet, skin, blood pressure, weight and lipid management. Subjects were offered the opportunity to meet monthly with the pharmacist.	Change in glycosylated haemoglobin and serum lipid concentrations and changes in diabetes-related and total medicalion utilisation over time.	Average HbA1c levels decreased at each follow-up visit, with 50% improving at each visit.There was improvement in lipid levels but these improvements were small and not significant. There were significant reductions in total medical costs over time.	Clinical data are reported as numbers of patients improving at each folow-up visit. Follow-up periods were not at standard intervals. Lack of control group to directly compare the outcomes.

Disease State		Diabetes Management		
Reference	Irons, B. K., 2002, Pharmacotherapy, ; 22: 1294-300			
Title	A retrospective cohort analysis of the clinical effectiveness of a physician-pharmacist collaborative drug therapy management diabetes clinic			
Evidence Grading		E3-2		
Study Type	Concurrent control or cohort			<div>Concurrent control or cohort</div> <div>1 <input checked="" type="checkbox"/> Was the selection of the subjects for the new intervention adequate?</div> <div>2 <input checked="" type="checkbox"/> Was the selection of the subjects for the comparison or control group adequate?</div> <div>3 <input type="checkbox"/> Did the study adequately control for demographic characteristics, clinical features and other potential confounding variables in the design or analysis?</div> <div>4 <input type="checkbox"/> Was the measurement of outcomes unbiased (i.e. blinded to treatment group and comparable across groups)?</div> <div>5 <input checked="" type="checkbox"/> Was follow-up long enough for outcome to occur?</div> <div>6 <input checked="" type="checkbox"/> Was the follow-up complete enough for appropriate interpretation?</div>
Target	Target at risk individuals			
Outcome Types	Surrogate			
Setting	Community			
TimeFrame	17 months			
Country	UNITED STATES			
Study Characteristics	Intervention	Outcome Measures	Key Findings	
Retrospective cohort study of the effect of pharmacist involvement in a primary care clinic for patients with type 1 or 2 diabetes within the same healthcare system. The glycaemic control of 87 men whose diabetic related drug therapy was managed by pharmacists was compared to that of 85 diabetics whose care did not involve a pharmacist. All patients were male offenders enrolled in primary care clinics located in the Texas Department of Criminal Justice Executive Services.	In the intervention group, pharmacists worked in the clinic on a part-time basis and were responsible for managing drug therapy. This included taking detailed medical and drug therapy histories, providing patient education regarding disease states and drug use, counselling on lifestyle modifications in diet and exercise, performing physical assessments, starting or altering drug regimens pertaining to diabetes (including hypertension and hyperlipidaemia) and ordering and assessing laboratory tests to monitor patient outcomes.	The primary outcomes were differences in fasting blood glucose (FBG) and glycosylated haemoglobin. Secondary outcomes included the relative risk of achieving HbA1c below 7%, frequency of diabetes related clinic visits and frequency of hypoglycaemic events.	No statistically significant difference was noted in FBG or HbA1c median levels between the 2 groups. However, patients in the intervention group were approximately 5-times more likely to achieve a target HbA1c less than 7% (P < 0.0005). There was no difference in the incidence of hypoglycaemic episodes. Intervention patients were seen more frequently in clinics for diabetes related conditions (P < 0.001).	Patients in the intervention group were older, had a lower body weight, and had superior blood glucose control at study inception. Blinding of outcomes did not occur.

Disease State		Diabetes Management		
Reference	Jimenez, F. J., 2001, P R Health Sci J, ; 20: 35-9			
Title	Screening, monitoring, and educating patients with diabetes in an independent community pharmacy in Puerto Rico			
Evidence Grading		E4	Descriptive	
Study Type		Descriptive		
Target		Management and/or improving risk & monitoring response		
Outcome Types		Surrogate		
Setting		Community		
Country		PUERTO RICO		
Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Descriptive study of a one-day educational activity in a community pharmacy in Puerto Rico.	People who did not have a diagnosis of diabetes were screened as an effort to detect potentially undiagnosed diabetes. Participants also received education regarding diabetes and printed educational materials.	Descriptive analysis	No findings of note	Groups included diabetics and no information on sugar levels of the non diabetics was provided.

Disease State

Diabetes Management

Reference

Rothman, Russell L., 2005, The American Journal of Medicine, ; 118: 276-284

Title

A randomized trial of a primary care based disease management program to improve cardiovascular risk factors and glycated hemoglobin levels in patients with diabetes management program to improve cardiovascular risk factors and glycated hemoglobin levels in patients with diabetes

Evidence Grading	E2	Randomised Controlled Trial A Correct blinded randomisation method described OR randomised double-blind method stated AND group similarity documented C Analysis by treatment received only OR no mention of withdrawals C Blinding not done A All patients had standardised assessment
Study Type	Randomised Controlled Trial	
Target	Management and/or improving risk & monitoring response	
Source Type	Manual Search	
Outcome Types	Clinical	
Setting	Community	
TimeFrame	12 months	
Country	UNITED STATES	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Randomised controlled trial of 217 patients with type 2 diabetes and poor glycaemic control (HbA1c level 8.0%) was conducted at an academic general medicine practice in the United States over 12 months. Patients were referred to the study by their general practitioner.	Intervention patients received intensive management from clinical pharmacists, as well as from a diabetes care coordinator who provided diabetes education, applied algorithms for managing glucose control and decreasing cardiovascular risk factors. Pharmacists were in contact with patients (telephone or face to face) every two-four weeks. Control patients received a one-time management session from a pharmacist followed by usual care from their primary care provider.	Primary outcomes included blood pressure, A1C level, cholesterol level, and aspirin use. Secondary outcomes included diabetes knowledge, satisfaction, use of clinical services, and adverse events.	For the 194 patients (89%) with 12-month data, the intervention group had significantly greater improvement than did the control group for systolic blood pressure (9 mmHg, P=0.008) and HbA1c level (0.8%, P=0.05)) Change in total cholesterol level was not significant. At 12 months, aspirin use was 91% in the intervention group versus 58% among controls (P<0.0001). No change in cholesterol levels or statin use.	Some baseline differences between patients (more african-american and older patients in the control group).

Disease State

Diabetes Management

Reference

Sarkadi, A., 2004, Patient Educ Couns, ; 53: 291-8

Title

Experience-based group education in Type 2 diabetes: a randomised controlled trial

Evidence Grading	E2	Randomised Controlled Trial A Correct blinded randomisation method described OR randomised double-blind method stated AND group similarity documented D Analysis by treatment received AND no mention of withdrawals OR more than 15% withdrawals/loss-to-follow-up/post-randomisation exclusions C Blinding not done A All patients had standardised assessment
Study Type	Randomised Controlled Trial	
Target	Management and/or improving risk & monitoring response	
Outcome Types	Surrogate	
Setting	Community	
TimeFrame	24 months	
Country	SWEDEN	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Randomised trial compared the effect of a 12-month educational intervention by pharmacists on glycaemic control in persons with type 2 diabetes compared to no intervention. 77 patients were randomised of which 33 intervention and 31 control patients completed 24-months follow-up.	Specifically trained pharmacists provided a 12-month group educational program. Pharmacists did not intervene with medication regimens, but referred patients to their doctors. Patients met monthly for a 12-month period where experiences with diabetes self-management were shared. Practical aspects of diabetes management, such as dietary recommendations, performing BSL monitoring and exercise were discussed.	The primary outcome was HbA1c control compared to baseline.	A significant difference in HbA1c was detected between HbA1c levels in the 2 groups following 24 months of follow-up (0.4%, P = 0.023).	Small patient numbers. Differences in HbA1c were significant at 6-month and 24-month follow-up, but not at 12-month follow-up (the end of the 12-month education period). The difference after 24-months was minimal. Blinding of outcomes did not occur. Over 15% of patients were lost to follow-up. Patients were self-referred, so improvements may not be applicable to all type 2 diabetics.

Disease State		Diabetes Management		
Reference	Sarkadi, A., 2004, Patient Educ Couns, ; :			
Title	The influence of participant's self-perceived role on metabolic outcomes in a diabetes group education program			
<div><div>Evidence Grading</div><div>Study Type</div><div>TargetManagement and/or improving risk & monitoring response</div><div>Outcome TypesSurrogate</div><div>SettingCommunity</div><div>TimeFrame2 years</div><div>CountrySWEDEN</div></div>		Study Type not recorded		
Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Before and after study of 259 patients with type 2 diabetes enrolled in an educational program. The program ran for 12-months and was conducted by specially trained pharmacists.	Specifically trained pharmacists provided a 12-month group educational program. Pharmacists did not intervene with medication regimens, but referred patients to their doctors. Patients met monthly for a 12-month period where experiences with diabetes self-management were shared. Practical aspects of diabetes management, such as dietary recommendations, performing BSL monitoring and exercise were discussed.	Reduction in HbA1c	After 24 months of follow-up, mean HbA1c was reduced by 0.15% compared to baseline (P < 0.05).	Small improvement after 2 years, patients self-referred.

Disease State

Hypertension

Reference

Cote, I., 2003, Pharmacoeconomics, ; 21: 415-28

Title

A pharmacy-based health promotion programme in hypertension: cost-benefit analysis

Evidence Grading	E3-2	Concurrent control or cohort
Study Type	Concurrent control or cohort	
Target	Management and/or improving risk & monitoring response	
Source Type	MEDLINE	
Outcome Types	Surrogate	
Setting	Community	
TimeFrame	9-months	
Country	CANADA	
Concurrent control or cohort		
1 <input checked="" type="checkbox"/> Was the selection of the subjects for the new intervention adequate ?		
2 <input type="checkbox"/> Was the selection of the subjects for the comparison or control group adequate ?		
3 <input type="checkbox"/> Did the study adequately control for demographic characteristics, clinical features and other potential confounding variables in the design or analysis?		
4 <input type="checkbox"/> Was the measurement of outcomes unbiased (ie blinded to treatment group and comparable across groups)?		
5 <input checked="" type="checkbox"/> Was follow-up long enough for outcomes occur?		
6 <input checked="" type="checkbox"/> Was the follow-up complete enough for appropriate interpretation ?		

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
9 community pharmacies participated in a health promotion programme focussed of hypertension. 4 pharmacies ran the promotion and the remaining 5 acted as controls. 111 patients were agreed to participate of which 100 completed the study. 41 of these were exposed to the intervention.	The intervention consisted of a computer-assisted educational program. The program alerted the pharmacist when dispensing an antihypertensive drug to an enrolled patient, prompting blood pressure measurement. The software also assessed compliance with the prescribed medication. The program recommended interventions based on rate of prescription presentation and measured blood pressure.	Costs associated with treatment, including direct and indirect costs; including costs of medication, physician visits, hospitalisations and travel.	Direct costs to the patients in the intervention group were significantly reduced compared to the non-exposed patients.	Small patient numbers. No reporting of blood pressure readings. The different groups had different baseline characteristing resulting in unequal spending on direct costs at baseline. Selection criteria for enrolled patients is not provided.

Disease State

Hypertension

Reference

Hourihan, F., 2003, Australian Journal of Rural Health, ; 11: 28-35

Title

Rural community pharmacy: a feasible site for a health promotion and screening service for cardiovascular risk factors

Evidence Grading	E4	Descriptive
Study Type	Descriptive	
Target	Target at risk individuals	
Source Type	MEDLINE	
Outcome Types	Surrogate	
Setting	Community	
Country	AUSTRALIA	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Cardiovascular risk factor screening in four pharmacies in rural Australia. Description of study findings from 204 screened participants. Screening was conducted over three to four months and patients returned at three months for reassessment.	Pharmacists screened patients for cardiovascular risk factors (cholesterol, blood pressure, body mass index, and provided information on a healthy lifestyle. Pharmacists also provided appropriate referral dependant on results of the screening tests.	Identification of modifiable cardiovascular risk factors.	Over 50% of screened participants had elevated cholesterol levels and thirty percent required referral to the GP. Nearly 20% of patients had elevated BP recordings and nearly 90% had at least one modifiable cardiovascular risk factor.	There was no data displayed about the outcome of referral or the outcome of the intervention from baseline

Disease State

Hypertension

Reference

Cioffi, S. T., 2004, Ann Pharmacother, ; 38: 771-5

Title

Glycosylated hemoglobin, cardiovascular, and renal outcomes in a pharmacist-managed clinic

Evidence Grading	E4	Descriptive
Study Type	Descriptive	
Target	Target at risk individuals	
Source Type	MEDLINE	
Outcome Types	Surrogate	
Setting	Outpatient	
TimeFrame	12 months	
Country	UNITED STATES	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Descriptive study was conducted in 70 veteran's affairs patients. Subjects were type 2 diabetics and were managed by a pharmacist-directed clinic over a 9-12 month period.	Patients were referred to a pharmacist-led clinic if they were a type 2 diabetic receiving treatment with insulin, oral agents or had an HbA1c level > 7% by primary care providers. Once enrolled in the clinic, patients met with the pharmacist every 6-8 weeks for 30 minutes. During the clinic appointment, the pharmacist provided diabetes education, medication counselling, monitoring and management. Addition to or alteration of the patients existing drug therapy was discussed with the primary health care provider and carried out by the pharmacist.	Glycosylated haemoglobin; secondary measures were body weight, total cholesterol, LDL, HDL, triglycerides, systolic and diastolic blood pressure and level of microalbuminuria.	Mean HbA1c decreased significantly from 10.3% to 6.9% during the intervention. Significant reductions were also found in systolic BP, diastolic BP, TC, LDL, triglycerides, and level of microalbuminuria after 9-12 months of follow-up.	Lack of a control group. Possibility of a selection bias as no formal selection process for recruitment to the clinic was adhered to - if the HbA1c was > 7%, Physicians made a subjective assessment of which patients might have benefited from this process.

Disease State

Hypertension

Reference

Okamoto MP, 2001, Pharmacotherapy, ; 21: 1337-1344

Title

Pharmacoeconomic Evaluation of a Pharmacist-Managed Hypertension Clinic

Evidence Grading	E2	Randomised Controlled Trial C Randomisation claimed but not described and investigator not blinded D Analysis by treatment received AND no mention of withdrawals OR more than 15% withdrawals/loss-to-follow-up/post-randomisation exclusions C Blinding not done A All patients had standardised assessment
Study Type	Randomised Controlled Trial	
Target	Management and/or improving risk & monitoring response	
Source Type	Manual Search	
Outcome Types	Surrogate	
Setting	Outpatient	
TimeFrame	six months	
Country	UNITED STATES	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Randomised controlled study at a hypertension clinic and general medicine clinics within a managed care facility. Patients were randomly assigned to the pharmacist managed clinic or to usual care. A total of 330 patients completed the study which lasted for six months.	Pharmacists managed the treatment of patients, physicians were contacted regarding therapeutic changes, and physicians were asked not to adjust drug therapy unless absolutely necessary. Control group was standard physician care. Pharmacists could schedule appointments at their discretion, the pharmacist looked at cost-effective blood pressure management and counseled regarding non-pharmacological treatment of hypertension.	Systolic and diastolic blood pressure measurements at baseline and six months later, quality of life (SF-36) and healthcare utilisation.	From baseline to final visit in the intervention group there was significant reductions in systolic and diastolic blood pressures (144mmHg to 135mmHg) and (83mmHg to 78mmHg) respectively and there were no changes in the usual care group from baseline. No differences in quality of life. Costs were significantly greater in the pharmacist-managed clinic (\$130.67 vs \$73.51) per patient.	No blinding of outcomes, randomisation method not mentioned, blood pressure measurements between assessments were not included.

Disease State

Hypertension

Reference

Reilly, V., 2003, Pharmacy World Sci, ; 25: 294-8

Title

The clinical and economic impact of a secondary heart disease prevention clinic jointly implemented by a practice nurse and pharmacist

Evidence Grading	E4	Descriptive
Study Type	Descriptive	
Target	Management and/or improving risk & monitoring response	
Source Type	Cochrane	
Outcome Types	Surrogate	
Setting	Community	
Country	UNITED KINGDOM	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Descriptive study of the effect of a pharmacist identifying and monitoring patients at risk of CVD in general practice in the the West of Scotland. 212 patients had been through the clinic at the time of writing. The intervention program was evaluated over 30 months.	The pharmacist identified patients with or at risk of CVD by searching the electronic records of the practice computer program. These patients were then invited to attend an initial appointment. A practice nurse took a detailed history and ordered a number of blood tests (cholesterol, TFTs, FBC etc.). The patient then returned to discuss the outcome of the tests with the pharmacist and practice nurse and medication related suggestions were then made to the doctor.	Target cholesterol levels, aspirin use and blood pressure.	Improvement in the use of aspirin (39% vs 92%) P<0.001, levels of total cholesterol above 5mmol/L were reduced from 70% to 43% (P<0.001). Blood pressure above 140/85 was reduced from 44% to 31% (P=0.03) and 37% to 15% respectively (P<0.0001)	This study evaluated the effect of a pharmacist within a general practice delivering the intervention. Caution should be exercised if the results are extrapolated to community pharmacy. The evaluation of the program was undertaken by using the first 100 patients compared to the final cohort of 212 patients. There was no control group to evaluate the effectiveness of the program.

Disease State

Hypertension

Reference

Rothman, Russell L., 2005, The American Journal of Medicine, ; 118: 276-284

Title

A randomized trial of a primary care based disease management program to improve cardiovascular risk factors and glycated hemoglobin levels in patients with diabetes management program to improve cardiovascular risk factors and glycated hemoglobin levels in patients with diabetes

Evidence Grading	E2	Randomised Controlled Trial A Correct blinded randomisation method described OR randomised double-blind method stated AND group similarity documented C Analysis by treatment received only OR no mention of withdrawals C Blinding not done A All patients had standardised assessment
Study Type	Randomised Controlled Trial	
Target	Management and/or improving risk & monitoring response	
Source Type	Manual Search	
Outcome Types	Clinical	
Setting	Community	
TimeFrame	12 months	
Country	UNITED STATES	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Randomised controlled trial of 217 patients with type 2 diabetes and poor glycaemic control (HbA1c level 8.0%) was conducted at an academic general medicine practice in the United States over 12 months. Patients were referred to the study by their general practitioner.	Intervention patients received intensive management from clinical pharmacists, as well as from a diabetes care coordinator who provided diabetes education, applied algorithms for managing glucose control and decreasing cardiovascular risk factors. Pharmacists were in contact with patients (telephone or face to face) every two-four weeks. Control patients received a one-time management session from a pharmacist followed by usual care from their primary care provider.	Primary outcomes included blood pressure, A1C level, cholesterol level, and aspirin use. Secondary outcomes included diabetes knowledge, satisfaction, use of clinical services, and adverse events.	For the 194 patients (89%) with 12-month data, the intervention group had significantly greater improvement than did the control group for systolic blood pressure (9 mmHg, P=0.008) and HbA1c level (0.8%, P=0.05)) Change in total cholesterol level was not significant. At 12 months, aspirin use was 91% in the intervention group versus 58% among controls (P<0.0001). No change in cholesterol levels or statin use.	Some baseline differences between patients (more african-american and older patients in the control group).

Disease State

Hypertension

Reference

Taylor, CT, 2003, Am J Health-Syst Pharm, ; 60: 1123-9

Title

Improving primary care in rural Alabama with a pharmacy initiative

Evidence Grading	E3-1	Randomised Controlled Trial C Randomisation claimed but not described and investigator not blinded A Intention to treat analysis AND full follow-up C Blinding not done A All patients had standardised assessment
Study Type	Randomised Controlled Trial	
Target	Management and/or improving risk & monitoring response	
Source Type	Manual Search	
Outcome Types	Surrogate	
Setting	Community	
TimeFrame	12 months	
Country	UNITED STATES	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Randomised controlled trial of a pharmaceutical care program in family medicine clinics in the United States. Patients at high risk of drug-related problems were enrolled. 33 intervention patients and 36 Control patients were recruited and followed up for 12 months. Control patients received standard medical care.	Pharmacists attached to a family medicine clinic undertook a pharmaceutical care program for intervention patients and recommended changes to the doctor. This was done at each visit to the doctor by the patient	Blood pressure, lipid status, SF-36.	92% of intervention patients compared with 28% of control patients reached target blood pressure at 12 months (P<0.001). 78% of intervention patients compared with 6% of control patients reached target lipid levels at 12 months (P<0.001). No change in SF-36.	This study was conducted in a family medicine clinic with a pharmacist involved in the clinic, caution should be exercised when extrapolating to community pharmacy. This was also a study of a pharmaceutical care program that assessed cardiovascular risk factors and monitoring as part of the program

Disease State

IDDM II

Reference

Cioffi, S. T., 2004, Ann Pharmacother, ; 38: 771-5

Title

Glycosylated hemoglobin, cardiovascular, and renal outcomes in a pharmacist-managed clinic

Evidence Grading	E4	Descriptive
Study Type	Descriptive	
Target	Target at risk individuals	
Source Type	MEDLINE	
Outcome Types	Surrogate	
Setting	Outpatient	
TimeFrame	12 months	
Country	UNITED STATES	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Descriptive study was conducted in 70 veteran's affairs patients. Subjects were type 2 diabetics and were managed by a pharmacist-directed clinic over a 9-12 month period.	Patients were referred to a pharmacist-led clinic if they were a type 2 diabetic receiving treatment with insulin, oral agents or had an HbA1c level > 7% by primary care providers. Once enrolled in the clinic, patients met with the pharmacist every 6-8 weeks for 30 minutes. During the clinic appointment, the pharmacist provided diabetes education, medication counselling, monitoring and management. Addition to or alteration of the patients existing drug therapy was discussed with the primary health care provider and carried out by the pharmacist.	Glycosylated haemoglobin; secondary measures were body weight, total cholesterol, LDL, HDL, triglycerides, systolic and diastolic blood pressure and level of microalbuminuria.	Mean HbA1c decreased significantly from 10.3% to 6.9% during the intervention. Significant reductions were also found in systolic BP, diastolic BP, TC, LDL, triglycerides, and level of microalbuminuria after 9-12 months of follow-up.	Lack of a control group. Possibility of a selection bias as no formal selection process for recruitment to the clinic was adhered to - if the HbA1c was > 7%, Physicians made a subjective assessment of which patients might have benefited from this process.

Disease State		Lipids		
Reference	Ahrens Renee A., 2003, J Am Pharm Assoc , 43: 583-590			
Title	Effects of Weight Reduction Interventions by Community Pharmacists			
Evidence Grading		E2	Randomised Controlled Trial	
Study Type	Randomised Controlled Trial			
Target	Target at risk individuals			
Source Type	Manual Search			
Outcome Types	Surrogate			
Setting	Community			
TimeFrame	22 weeks			
Country	UNITED STATES			
Randomised Controlled Trial		C Randomisation claimed but not described and investigator not blinded D Analysis by treatment received AND no mention of withdrawals OR more than 15% withdrawals/loss-to-follow-up/post-randomisation exclusions C Blinding not done A All patients had standardised assessment		
Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Open-label, RCT of the effectiveness of a meal replacement (MR) program with a reduced-calorie diet (RCD) for weight management using a community pharmacy as the point of contact for dietary advice. 95 patients (BMI between 25 and 32) completed randomisation, with 55 patients completing the 22-week trial, conducted in the United States.	The pharmacist counselled patients on their initial visit to the pharmacy at which time BP, lipids, blood glucose, weight and waist circumference were measured. A questionnaire to assess for past weight loss history and dietary intake, and level of activity was completed during this visit. Pharmacists then trained the patient in basic lifestyle modifications and written information was provided. Further education on recommended exercise was provided. Follow-up visits were conducted every 2 weeks. These consisted of weight, waist circumference, and BP measurements. At the 12 and 22 week visits, lipid levels were measured.	The main outcome measure was percentage weight loss and the percentage of patients able to lose more than 7% of their baseline weight in the weight loss phase (12 weeks). The ratio of total weight lost to active-period weight loss was calculated at the end of the weight maintenance phase (at 22 weeks). Changes in BP, lipids, waist circumference and triglycerides were also measured.	No significant difference in weight loss was noted between the groups during the active weight loss phase. A significant difference was not found at the end of the study in weight maintenance. Both groups lost a significant proportion of weight in the active phase, which was maintained through the maintenance phase.	Both groups received active treatments. Study would have benefited from including a group receiving no pharmacy consultation. Only 55 (58%) patients completed the study. The intention to treat principle was not used.

Disease State

Lipids

Reference

Ali, F., 2003, Can J Clin Pharmacol, ; 10: 101-6

Title

The effect of pharmacist intervention and patient education on lipid-lowering medication compliance and plasma cholesterol levels

Evidence Grading	E4	Descriptive
Study Type	Descriptive	
Target	Target at risk individuals	
Source Type	MEDLINE	
Outcome Types	Surrogate	
Setting	Community	
TimeFrame	6-months	
Country	CANADA	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Historically controlled study of the effect of pharmacist education on 149 non-compliant patients from 7 pharmacies on lipid-lowering therapy in Quebec and followed up for six months.	Pharmacist education regarding lipid disorders, benefits of compliance and lifestyle modifications for CVD at 2-month intervals for 6-month study period.	Prescription renewal rates and plasma lipid levels were measured at baseline and at the end of follow-up.	15.3% increase in number of compliant patients, 11-day reduction in the average days to prescription renewal. Reductions of TC, triglycerides and LDL by 6%, 16.2% and 8.5%, respectively.	Definition of non-compliance based on records at 1 pharmacy-may have used another pharmacy and thus been compliant. Over one-third of patients lost to follow-up (selection of compliant patients).

Disease State		Lipids		
Reference	Cording, M. A., 2002, Ann Pharmacother, ; 36: 892-904			
Title	Development of a pharmacist-managed lipid clinic			
Evidence Grading		E4	Descriptive	
Study Type		Descriptive		
Target		Target at risk individuals		
Outcome Types		Surrogate		
Setting		Community		
TimeFrame		12 months		
Country		UNITED STATES		
Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Descriptive study of the development of a pharmacist managed lipid clinic within a primary care medical clinic. Outcomes of 15 patients who were seen in the clinic and met inclusion criteria (baseline lipid panel taken, 1 initial intervention by a pharmacist and a follow-up lipid panel) were described.	A pharmacist-managed lipid clinic was developed at Naval medical Center, San Diego. Pharmacists obtained medical history for review and discussed the role of the clinic with the patient. Pharmacists ordered lipid tests and managed treatment interventions including lifestyle modification and drug therapy. Education and advice on lifestyle was provided. Pharmacological therapy was initiated according to pre-specified algorithms. Patients attended the clinic every 4 weeks to 6 months depending on progress.	Proportion of patients receiving lipid-lowering medication, LDL, HDL and triglyceride level, achievement of target lipid goals.	After 12-months of operation 57% of patients were taking HMG-CoA reductase inhibitors, 17% received fibrates and 17% of patients were lifestyle managed. Relative to baseline levels, LDL cholesterol decreased 20%, HDL increased 11% and triglycerides reduced 19%. Overall lipid goals were achieved in 77% of patients.	Significance of outcomes is not assessed. Only patients with an initial intervention by the pharmacist were evaluated, potential selection of more receptive subjects. Caution with extrapolation of this program to community pharmacy as was conducted within a primary care clinic. Patients were referred to the clinic by the physician or nurse practitioner, therefore there may be some selection bias involved in the process.

Disease State		Lipids			
Reference	Ditusa, L., 2001, Am J Manag Care, ; 7: 973-9				
Title	A pharmacy-based approach to cholesterol management				
Evidence Grading		E3-2			
Study Type	Concurrent control or cohort			<div>Concurrent control or cohort</div> <div>1 <input checked="" type="checkbox"/> Was the selection of the subjects for the new intervention adequate ?</div> <div>2 <input type="checkbox"/> Was the selection of the subjects for the comparison or control group adequate ?</div> <div>3 <input type="checkbox"/> Did the study adequately control for demographic characteristics, clinical features and other potential confounding variables in the design or analysis?</div> <div>4 <input type="checkbox"/> Was the measurement of outcomes unbiased (ie blinded to treatment group and comparable across groups)?</div> <div>5 <input checked="" type="checkbox"/> Was follow-up long enough for outcomes occur?</div> <div>6 <input checked="" type="checkbox"/> Was the follow-up complete enough for appropriate interpretation ?</div>	
Target	Target at risk individuals				
Source Type	MEDLINE				
Outcome Types	Surrogate				
Setting	Community				
TimeFrame	6-months				
Country	UNITED STATES				
Study Characteristics		Intervention	Outcome Measures		Key Findings
A prospective cohort study involving 450 patients with cardiovascular disease at a managed care organisation. 300 patients were enrolled in a pharmacy based cholesterol program, while 150 patients served as a control group.		As patients visited the pharmacy, with a history of MI, CVD, PVD, IHD or surgical revascularisation they were recruited into the study. Pharmacists then were responsible for reviewing the patient's medication chart, pharmacy record and laboratory data to assess clinical status and cholesterol profile when available. Pharmacists made recommendations based on agreed guidelines (NCEP) and received a formal training program. Standard letters were sent to physicians as recommendations were made regarding appropriate monitoring and changes to medication therapy. Pharmacists then implemented these changes following approval from the treating physician. Patients were provided with medication counselling regarding the role of cholesterol in CVD, discussed medication adherence, diet and lifestyle advice and ensured appropriate laboratory monioting. The pharmacist was also responsible for referring the patient to nutritional classes, individual consults with dieticians and diabetic teaching where necessary. Cholesterol management was assessed at baseline and during a 1-year follow-up period.	Achievement of target lipid levels, receipt of cholesterol medication and the proportion receiving appropriate cholesterol monitoring.	The percentage of patients achieving target LDL levels increased from 45% to 72% (p<0.01) in the intervention group compared to 33% to 43% in control patients (p=0.26). 99% of pharmacist recommendations were implemented by physicians in the intervention group.	The number of patients lost to follow-up is not provided. The method of randomly identifying control patients is not described. The control group was made up of patients, selected from the group treated by physicians that did not consent for their patients to be managed in the pharmacy.

Disease State		Lipids		
Reference	Donaldson, A. R., 2004, Am J Health Syst Pharm, ; 61: 493-7			
Title	Pharmacist-run lipid management program in rural Alabama			
Evidence Grading	E4	Descriptive		
Study Type	Descriptive			
Target	Target at risk individuals			
Source Type	MEDLINE			
Outcome Types	Surrogate			
Setting	Community			
Country	UNITED STATES			
Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Descriptive study of a pharmacist run mobile lipid management clinic in rural United States. Twenty-two patients were enrolled in the program	The pharmacist conducted lipid testing and gave education to the participants and physician referral to the clinic was needed. Monthly follow-up was conducted with lipid tests and education conducted.	Descriptive	No findings of note	Small number of patients, intensive and costly program, no control group. Outcomes were unable to be assessed due to cancellation of the clinic

Disease State		Lipids		
Reference	Geber, J, 2002, Pharmacotherapy, ; 22: 738-747			
Title	Optimizing Drug Therapy in Patients with Cardiovascular Disease: The Impact of Pharmacist-Managed Pharmacotherapy Clinics in a Primary Care Setting			
Evidence Grading		E3-2		
Study Type	Concurrent control or cohort			
Target	Target at risk individuals			
Source Type	Manual Search			
Outcome Types	Surrogate			
Setting	Outpatient			
Country	UNITED STATES			
Concurrent control or cohort		<div><div>1</div><div><input checked="" type="checkbox"/></div><div>Was the selection of the subjects for the new intervention adequate ?</div></div> <div><div>2</div><div><input checked="" type="checkbox"/></div><div>Was the selection of the subjects for the comparison or control group adequate ?</div></div> <div><div>3</div><div><input checked="" type="checkbox"/></div><div>Did the study adequately control for demographic characteristics, clinical features and other potential confounding variables in the design or analysis?</div></div> <div><div>4</div><div><input checked="" type="checkbox"/></div><div>Was the measurement of outcomes unbiased (ie blinded to treatment group and comparable across groups)?</div></div> <div><div>5</div><div><input checked="" type="checkbox"/></div><div>Was follow-up long enough for outcomes occur?</div></div> <div><div>6</div><div><input type="checkbox"/></div><div>Was the follow-up complete enough for appropriate interpretation ?</div></div>		
Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
A retrospective cohort study of 146 patients in the United Sates, of which 74 were managed by a pharmacist-managed clinic. The study population comprised patients who were treated for cardiovascular disease in primary care clinics. Patients were included if they had coronary artery disease and baseline LDL levels above 100 mg/dL.	This was a retrospective study of patients with cardiovascular disease. A randomised list of patients was created and the first 75 patients managed by primary care physicians formed the control cohort and the first 75 patients that were managed by a clinical pharmacy outpatient clinic formed the intervention group. Primary care providers had the option to refer patients to the pharmacy managed clinic. Pharmacists had the power to commence, adjust or discontinue drugs, as well as order and interpret laboratory tests as necessary.	The percenage of patients achieving target LDL, change in lipid values between groups, percentage of patients treated with antiplatelet agents or antihyperlipidaemic therapy. Secondary endpoints included the proportion of suitable patients receiving recommended dosages of ACE inhibitors, and the number of cardiovascular events experienced.	Appropriate treatment of hyperlipidaemia occurred more frequently in the pharmacist managed group (96% vs 68%; p < 0.0001). Appropriate use of ACE inhibitors was significantly improved in pharmacist-managed patients (89% vs 69%; p < 0.05).	The study was retrospective and thus did not allow randomisation into two groups. There was no reference made to reasons for referral to the pharmacist-managed care, this may have allowed for bias in the type of patients referred to the pharmacist-managed clinic. Similar reductions in lipid levels in the two groups.

Disease State		Lipids			
Reference	Hourihan, F., 2003, Australian Journal of Rural Health, ; 11: 28-35				
Title	Rural community pharmacy: a feasible site for a health promotion and screening service for cardiovascular risk factors				
Evidence Grading		E4	Descriptive		
Study Type		Descriptive			
Target		Target at risk individuals			
Source Type		MEDLINE			
Outcome Types		Surrogate			
Setting		Community			
Country		AUSTRALIA			
Study Characteristics		Intervention	Outcome Measures	Key Findings	Limitations
Cardiovascular risk factor screening in four pharmacies in rural Australia. Description of study findings from 204 screened participants. Screening was conducted over three to four months and patients returned at three months for reassessment.		Pharmacists screened patients for cardiovascular risk factors (cholesterol, blood pressure, body mass index, and provided information on a healthy lifestyle. Pharmacists also provided appropriate referral dependant on results of the screening tests.	Identification of modifiable cardiovascular risk factors.	Over 50% of screened participants had elevated cholesterol levels and thirty percent required referral to the GP. Nearly 20% of patients had elevated BP recordings and nearly 90% had at least one modifiable cardiovascular risk factor.	There was no data displayed about the outcome of referral or the outcome of the intervention from baseline

Disease State

Lipids

Reference

Lee, S. S., 2004, J Clin Pharmacol, ; 44: 632-9

Title

Benefits of individualized counseling by the pharmacist on the treatment outcomes of hyperlipidemia in Hong Kong

Evidence Grading	E3-1	Pseudorandomised controlled trials D Randomisation not mentioned D Analysis by treatment received AND no mention of withdrawals OR more than 15% withdrawals/loss-to-follow-up/post-randomisation exclusions B Blinding of outcome assessor OR patient and care giver A All patients had standardised assessment
Study Type	Pseudorandomised controlled trials	
Target	Management and/or improving risk & monitoring response	
Source Type	MEDLINE	
Outcome Types	Surrogate	
Setting	Outpatient	
TimeFrame	Three months	
Country	HONG KONG	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Controlled trial in Hong Kong recruiting 59 patients of intense counselling and follow-up cholesterol monitoring for three months by a pharmacist for hyperlipidaemic patients recruited from a hospital compared with usual care.	Intense counselling consisted of tailored education at baseline, they received another visit at one month to reinforce education and assess cholesterol levels. At three months a final visit was conducted as per the one month visit.	Compliance (75% or more tablets taken), level of lipid reduction,	Compliance was assessed as 82.1% in the intervention group compared to 60.5% in the control group, P<0.05. Reduction in cholesterol was significant in both groups, magnitude was larger in the intervention group, unsure if this is statistically significant.	Randomisation was not conducted and allocation was by days of the week. Small sample size. High dropout rate (9 of 59). Reduction in cholesterol in both groups, magnitude higher in the intervention group but unsure if this is statistically significant.

Disease State		Lipids			
Reference	Paulós, C., 2005, Ann Pharmacother, ; 39: xxx-xxx				
Title	Impact of a Pharmaceutical Care Program in a Community Pharmacy on Patients with Dyslipidemia				
Evidence Grading		E2	Randomised Controlled Trial C Randomisation claimed but not described and investigator not blinded A Intention to treat analysis AND full follow-up C Blinding not done A All patients had standardised assessment		
Study Type	Randomised Controlled Trial				
Target	Management and/or improving risk & monitoring response				
Source Type	Manual Search				
Outcome Types	Patient Relavent				
Setting	Outpatient				
TimeFrame	16 weeks				
Country	CHILE				
Study Characteristics		Intervention	Outcome Measures	Key Findings	Limitations
Randomised controlled trial in one community pharmacy in Chile, Forty two patients were recruited when they purchased medication or requested lipid studies (a service provided by the pharmacy). 23 patients were randomised to the intervention and 19 to the control group. Follow-up was for 16 weeks.		Intervention group received a comprehensive pharmaceutical plan and scheduled follow-up for five times in 16 weeks (including baseline). Lipids were measured at the 1st, 3rd and 5th visits and education delivered at each interview. The control group received standard pharmaceutical care.	Reduction in lipid measurements, body mass index, drug related problems (DRPs) and SF-36.	Significant reduction in cholesterol levels in the intervention group (205.1mg/dL to 178.1mg/dL P<0.03) compared to the control group (203.2mg/dL to 199.1mg/dL P<0.66). Also a significant decrease in trigylcerides in the intervention group (P=0.01) with no change in the control group (P=0.14). Significant reduction in weight in the intervention group (loss of 1kg, P<0.02) with no change in the control group. 24 of 26 (92%) DRPs in the intervention group were solved compared to 5 of 26 (19%) without intervention in the control group. Significant change in the SF-36 index at the end of the study favouring the intervention group.	Small number of patients, blinding and randomisation not specified.

Disease State		Lipids		
Reference	Peterson, G. M., 2004, J Clin Pharm Ther, ; 29: 23-30			
Title	Impact of pharmacist-conducted home visits on the outcomes of lipid-lowering drug therapy			
Evidence Grading	E2	Randomised Controlled Trial		
Study Type	Randomised Controlled Trial			
Target	Management and/or improving risk & monitoring response			
Source Type	MEDLINE			
Outcome Types	Surrogate			
Setting	Community			
TimeFrame	Six months			
Country	AUSTRALIA			
Study Characteristics		Intervention	Outcome Measures	Key Findings
Randomised controlled trial of 81 patients with a cardiovascular diagnosis on discharge from hospital and receiving a lipid lowering agent. (39 intervention group and 42 control group) in Tasmania, Australia. Study was conducted for six months.		Patients in the intervention group were visited monthly at home by a pharmacist, who provided education, assessed for drug related problems and compliance and measured total blood cholesterol levels.	Cholesterol levels at baseline (6 weeks after discharge) compared to the six month cholesterol levels in the control and intervention group. Satisfaction surveys from patients and general practitioners.	No significant difference for cholesterol levels at six months between the control and intervention group, although there was a significant decline in cholesterol levels from baseline to six months in the intervention group compared to control (4.9 to 4.2 vs 4.7 to 4.4 respectively P<0.005). No changes in compliance and response from GPs and patients was favourable.
				Limitations
				13 out of 94 were lost to follow-up. Lack of blinding of outcome assessment. Clinical outcomes were not assessed.

Disease State

Lipids

Reference

Taylor, CT, 2003, Am J Health-Syst Pharm, ; 60: 1123-9

Title

Improving primary care in rural Alabama with a pharmacy initiative

Evidence Grading	E3-1	Randomised Controlled Trial C Randomisation claimed but not described and investigator not blinded A Intention to treat analysis AND full follow-up C Blinding not done A All patients had standardised assessment
Study Type	Randomised Controlled Trial	
Target	Management and/or improving risk & monitoring response	
Source Type	Manual Search	
Outcome Types	Surrogate	
Setting	Community	
TimeFrame	12 months	
Country	UNITED STATES	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Randomised controlled trial of a pharmaceutical care program in family medicine clinics in the United States. Patients at high risk of drug-related problems were enrolled. 33 intervention patients and 36 Control patients were recruited and followed up for 12 months. Control patients received standard medical care.	Pharmacists attached to a family medicine clinic undertook a pharmaceutical care program for intervention patients and recommended changes to the doctor. This was done at each visit to the doctor by the patient	Blood pressure, lipid status, SF-36.	92% of intervention patients compared with 28% of control patients reached target blood pressure at 12 months (P<0.001). 78% of intervention patients compared with 6% of control patients reached target lipid levels at 12 months (P<0.001). No change in SF-36.	This study was conducted in a family medicine clinic with a pharmacist involved in the clinic, caution should be exercised when extrapolating to community pharmacy. This was also a study of a pharmaceutical care program that assessed cardiovascular risk factors and monitoring as part of the program

Disease State		Lipids		
Reference	Tsuyuki, R. T., 2002, Arch Intern Med, ; 162: 1149-55			
Title	A randomized trial of the effect of community pharmacist intervention on cholesterol risk management: the Study of Cardiovascular Risk Intervention by Pharmacists (SCRIP)			
Evidence Grading		E2		
Study Type	Randomised Controlled Trial			
Target	Target at risk individuals			
Source Type	MEDLINE			
Outcome Types	Surrogate			
Setting	Community			
TimeFrame	16 weeks			
Country	CANADA			
Randomised Controlled Trial		A Correct blinded randomisation method described OR randomised double-blind method stated AND group similarity documented B Intention to treat analysis AND <15% loss to follow-up C Blinding not done A All patients had standardised assessment		
Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Randomized, multicenter trial comparing a program of pharmacist intervention with usual care in 54 community pharmacies in the provinces of Alberta and Saskatchewan. Follow-up was for sixteen weeks. Patients were approached for entry into the study if they were at high risk for cardiovascular events. This included patients with atherosclerotic vascular disease, including previous myocardial infarction, unstable angina, stable angina, coronary revascularization, or cerebral or peripheral vascular disease. Patients with diabetes mellitus and at least 1 other cardiovascular risk factor (cigarette smoking, hypertension, family history of cardiovascular events, obesity, sedentary lifestyle, hypercholesterolemia, or age >45yr for men or age>55 years for women) were also included. Representing a group of patients with an annual cardiovascular event rate of at least 5% per year.	Patients were randomized to receive either intervention or usual care. The usual care group received a booklet on heart attack and stroke. The intervention group received education on cardiovascular risk factors. The patient was encouraged to make an appointment with his or her primary care physician for further cardiovascular risk assessment, if necessary. To facilitate this, the pharmacist completed and faxed a single-page form to the physician. This form documented the patient's modifiable and nonmodifiable risk factors, medications, serum total cholesterol level, blood pressure, and any suggestions for further testing or management. The intervention group received follow-up visits at 2, 4, 8, 12, and 16 weeks. These visits were performed either in person or by telephone (at the discretion of the pharmacist) and were intended to ensure that the patients had visited their physician, to provide further education on cardiovascular risk factors, to make further suggestions to the patient or physician, to assess and reinforce adherence to medications, to answer any questions from the patient, and to determine whether study end points had been reached. The final visit (at 16 weeks) was conducted in person to measure the patient's cholesterol level and blood pressure.	The primary end point was a composite measure representing improvement in the process of cholesterol risk management. It consisted of measurement of a complete fasting cholesterol test by the primary care doctor or prescription of a new cholesterol-lowering medication or an increase in dosage of a cholesterol-lowering medication. Humanistic outcomes were also assessed	Study was terminated early due to overwhelming benefit of the program. The primary end point was reached in 57% of the intervention group 31% of the usual care group P<.001. The secondary end point of measurement of a fasting cholesterol panel performed by the primary care physician was attained in 53% of patients in the intervention group vs 29% in usual care group P<.001. The end point of new prescription for a cholesterol-lowering medication was attained in 10% of patients in the intervention group vs 4% in the usual care group P<.003. The end point of increased dose of an existing cholesterol-lowering medication was attained in 3% of patients in the intervention group vs 1% in the usual care group P = .07.	No clinical outcomes were assessed.

Disease State

Lipids

Reference

Tsuyuki, R. T., 2004, Am J Med, ; 116: 130-3

Title

Effect of community pharmacist intervention on cholesterol levels in patients at high risk of cardiovascular events: the Second Study of Cardiovascular Risk Intervention by Pharmacists (SCRIP-plus)

Evidence Grading	E4	Descriptive
Study Type	Descriptive	
Target	Target at risk individuals	
Source Type	MEDLINE	
Outcome Types	Surrogate	
Setting	Community	
TimeFrame	6 months	
Country	CANADA	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Before and after trial comparing a program of pharmacist intervention with usual care in 42 community pharmacies in six provinces in Canada. Follow-up was for sixteen weeks. Patients were approached for entry into the study if they were at very high risk for cardiovascular events. This included a history of coronary artery disease, coronary revascularisation, peripheral vascular disease, or cerebrovascular disease, presence of diabetes or a 10-year framingham risk score of >30%. Patients were followed up for six months.	Screening of cholesterol at the pharmacy, risk factor assessment and recommendations for therapeutic interventions were faxed to the primary care doctor.	Change in LDL cholesterol between baseline and six months.	Primary endpoint change in cholesterol of - 0.5mmol/L (3.5mmol/L to 3.0mmol/L P<0.0001).	Descriptive study with control group. 14% loss to follow-up. Exclusions comprised dose change of lipid lowering therapy in the last six months.

Disease State

Obesity/Weight management

Reference

Ahrens Renee A., 2003, J Am Pharm Assoc, ; 43: 583-590

Title

Effects of Weight Reduction Interventions by Community Pharmacists

Evidence Grading	E2	Randomised Controlled Trial
Study Type	Randomised Controlled Trial	
Target	Target at risk individuals	
Source Type	Manual Search	
Outcome Types	Surrogate	
Setting	Community	
TimeFrame	22 weeks	
Country	UNITED STATES	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Open-label, RCT of the effectiveness of a meal replacement (MR) program with a reduced-calorie diet (RCD) for weight management using a community pharmacy as the point of contact for dietary advice. 95 patients (BMI between 25 and 32) completed randomisation, with 55 patients completing the 22-week trial, conducted in the United States.	The pharmacist counselled patients on their initial visit to the pharmacy at which time BP, lipids, blood glucose, weight and waist circumference were measured. A questionnaire to assess for past weight loss history and dietary intake, and level of activity was completed during this visit. Pharmacists then trained the patient in basic lifestyle modifications and written information was provided. Further education on recommended exercise was provided. Follow-up visits were conducted every 2 weeks. These consisted of weight, waist circumference, and BP measurements. At the 12 and 22 week visits, lipid levels were measured.	The main outcome measure was percentage weight loss and the percentage of patients able to lose more than 7% of their baseline weight in the weight loss phase (12 weeks). The ratio of total weight lost to active-period weight loss was calculated at the end of the weight maintenance phase (at 22 weeks). Changes in BP, lipids, waist circumference and triglycerides were also measured.	No significant difference in weight loss was noted between the groups during the active weight loss phase. A significant difference was not found at the end of the study in weight maintenance. Both groups lost a significant propotion of weight in the active phase, which was maintained through the maintenance phase.	Both groups received active treatments. Study would have benefited from including a group receiving no pharmacy consultation. Only 55 (58%) patients completed the study. The intention to treat principle was not used.

Disease State

Obesity/Weight management

Reference

Braxton-Ilyod, K, 2002, J Am Pharm Assoc, ; 42: 118-120

Title

Impact of a Workplace Health and Wellness Pharmaceutical Care Service on the Weight and Obesity Classification of Employees

Evidence Grading	E4	Descriptive
Study Type	Descriptive	
Target	General Education of Population	
Source Type	Manual Search	
Outcome Types	Patient Relevant	
Setting	Community	
TimeFrame	12 months	
Country	UNITED STATES	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Descriptive study of a weight management program conducted at a University by a pharmacist in 138 patients who were followed up for a variable amount of time (ranging from 3 to 12 months).	Patients were recruited via the local media and local physicians were informed of the program. The pharmacist reviewed the patient's medication, provided education and developed an individualised weight management program. Patients were encouraged to return every 1-2 weeks and once a week for weight monitoring.	Changes in body weight and body mass index from baseline.	Mean weight loss of 8.4 pounds over the study period. Patients in the 3-, 6-, 9- month groups showed a statistically significant reduction in weight loss, however the change in weight at 12 months was not significant.	No concurrent control group to compare outcomes. The service was not delivered through a community pharmacy therefore extrapolation is difficult. Only 115 patients had data that was evaluable. The attrition rate at 12 months was 61%.

Disease State

Obesity/Weight management

Reference

Hourihan, F., 2003, Australian Journal of Rural Health, ; 11: 28-35

Title

Rural community pharmacy: a feasible site for a health promotion and screening service for cardiovascular risk factors

Evidence Grading	E4	Descriptive
Study Type	Descriptive	
Target	Target at risk individuals	
Source Type	MEDLINE	
Outcome Types	Surrogate	
Setting	Community	
Country	AUSTRALIA	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Cardiovascular risk factor screening in four pharmacies in rural Australia. Description of study findings from 204 screened participants. Screening was conducted over three to four months and patients returned at three months for reassessment.	Pharmacists screened patients for cardiovascular risk factors (cholesterol, blood pressure, body mass index, and provided information on a healthy lifestyle. Pharmacists also provided appropriate referral dependant on results of the screening tests.	Identification of modifiable cardiovascular risk factors.	Over 50% of screened participants had elevated cholesterol levels and thirty percent required referral to the GP. Nearly 20% of patients had elevated BP recordings and nearly 90% had at least one modifiable cardiovascular risk factor.	There was no data displayed about the outcome of referral or the outcome of the intervention from baseline

Disease State

Osteoporosis

Reference

Cerulli, J., 2004, J Am Pharm Assoc (Wash DC), ; 44: 161-7

Title

Impact and feasibility of a community pharmacy bone mineral density screening and education program

Evidence Grading	E4	Descriptive
Study Type	Descriptive	
Target	Target at risk individuals	
Outcome Types	Surrogate	
Setting	Community	
TimeFrame	3 months	
Country	UNITED STATES	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Descriptive study to assess the impact of a community-based BMD screening and education program and determine the feasibility of providing this service in community pharmacy. 140 women aged over 18 years were screened in 6 community pharmacies in America.	Pharmacy patrons were invited to undertake free BMD screening. Demographic information was collected for patients that underwent screening. BMD results were discussed with the patient during an education session and forwarded to primary care providers. Questionnaires were completed at baseline and at 3-months following the intervention.	Time spent with participants, project costs, willingness to pay, impact of intervention of health care decisions, lifestyle modifications and communication with physicians regarding osteoporosis.	82% indicated that screening was very useful in making informed healthcare decisions, and 91% believed that the intervention encouraged them to discuss osteoporosis with their physician. At 3-months, 11% reported improved exercise habits and 30% had increased their vitamin D and calcium intake. Patients were willing to pay for service.	Descriptive only. No data relating to any improvement in the prescribing of antiresorptive therapy was collected, study more related to the feasibility of pharmacy providing the service and primary prevention.

Disease State

Osteoporosis

Reference

Elliott, M. E., 2002, Ann Pharmacother, ; 36: 571-7

Title

Pharmacy-based bone mass measurement to assess osteoporosis risk

Evidence Grading	E4	Descriptive
Study Type	Descriptive	
Target	Target at risk individuals	
Outcome Types	Surrogate	
Setting	Community	
TimeFrame	6 weeks	
Country	UNITED STATES	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Descriptive study of osteoprosis screening of 133 women recruited in community pharmacies in Wisconsin.	Eligible women were recruited via promotion by community pharmacies. Subjects completed a fracture risk questionnaire. Calcaneal bone density was measured within 6-weeks using peripheral dual-energy x-ray absorptiometry. Mail surveys were used to assess interventions subsequent to the women's study participation.	Outcomes included patient knowledge of skeletal status, adequacy of calcium intake, prevalence of low bone density, and relationship between low bone mineral density and medical interventions.	20% of women had calcaneal osteoprosis with 30% of all patients meeting NOF treatment criteria for treatment. Of those meeting treatment criteria, 75% were unaware of their low bone mass. 50% of women received suboptimal doses of calcium. Women who discussed bone density with their doctor were more likely to receive further testing or antiresporptive therapy.	Descriptive only.

Disease State

Osteoporosis

Reference

Goode, J. V., 2004, J Am Pharm Assoc (Wash DC), ; 44: 152-60

Title

Regional osteoporosis screening, referral, and monitoring program in community pharmacies: findings from Project ImPACT: Osteoporosis

Evidence Grading	E4	Descriptive
Study Type	Descriptive	
Target	Target at risk individuals	
Outcome Types	Surrogate	
Setting	Community	
TimeFrame	6 months	
Country	UNITED STATES	

Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Observational study of an intervention designed to identify patients at risk of osteoporosis and refer them to their primary care physician. Study was conducted in 22 pharmacy locations in Virginia, United States over a 6 month follow-up period.	Pharmacists conducted screening of patients for their risk of osteoporosis with an ultrasound Bone Mineral Densitometer (BMD). Patients screened were female and needed an additional risk factor for osteoporosis (Patients paid \$25). Patients were stratified according to their risk of osteoporosis, were provided with education, and referred to their primary care physician as appropriate.	Outcomes of screening	Pharmacists screened 532 patients, 305 (57%) were contacted for follow-up after 3-6 months. 4% were subsequently diagnosed with osteoporosis. 70% of patients followed-up were at high or moderate risk of future fracture. Nearly 20% of patients screened were commenced on a medication to treat or prevent osteoporosis.	Only 57% of patients were able to be followed-up from the original screening which may present some follow-up bias.

Disease State

Smoking cessation

Reference

Kennedy, DT, 2002, J Am Pharm Assoc, ; 42: 51-56

Title

Results of a Smoking Cessation Clinic in Community Pharmacy Practice

<div>Evidence Grading</div> <div>E4</div> <div>Study Type</div> <div>Descriptive</div> <div>Target</div> <div>Target at risk individuals</div> <div>Source Type</div> <div>Manual Search</div> <div>Outcome Types</div> <div>Setting</div> <div>Country</div> <div>UNITED STATES</div>	<div>Descriptive</div>
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Study Characteristics	Intervention	Outcome Measures	Key Findings	Limitations
Cohort study assessing the effectiveness of a smoking cessation clinic in chain pharmacies in Virginia. 48 patients were enrolled in the program (7 pharmacies) and were assessed at 12 months for their abstinence rates.	Training sessions were conducted for pharmacists regarding smoking cessation. Pharmacists invited patients who were smokers and who wanted to quit to enrol in the program. The pharmacists scheduled appointments and discussed smiking cessation with the smoker. Patients were encouraged to have face to face visits (first three) and could be also follow-up by telephone.	Rate of long-term smoking cessation (self reported)	25% of patients had abstained for 12 months.	Patient recruitment was not random, pharmacists asked patients if they would like to be involved and patients could also be referred by other health professionals, likely that there would be selction bias in that patients who want to quit are more likely to be involved. No control group to compare outcomes. Frequency of visits not specified.

Disease State		Smoking cessation			
Reference	Maguire, T. A., 2001, Addiction, ; 96: 325-331				
Title	A randomized controlled trial of a smoking cessation intervention based in community pharmacies				
Evidence Grading		E2	Randomised Controlled Trial B Blinding and randomisation stated but method not described OR suspect technique (eg allocation by drawing from an envelope) B Intention to treat analysis AND <15% loss to follow-up C Blinding not done A All patients had standardised assessment		
Study Type	Randomised Controlled Trial				
Target	Target at risk individuals				
Outcome Types	Surrogate				
Setting	Community				
TimeFrame	12-months				
Country	IRELAND				
Study Characteristics		Intervention	Outcome Measures	Key Findings	Limitations
A randomised controlled trial to determine whether a structured community pharmacy-based smoking cessation program (PAS model) compared to normal advice from pharmacists would improve smoking cessation rates in 484 smokers. 124 pharmacists from Northern Ireland and England participated.		The Pharmacist's Action on Smoking (PAS) intervention involved a structured counselling program, information provision and weekly follow-up for 1 month, then monthly as required. Pharmacists recruiting and counselling patients were provided with training and reimbursement for recruitment.	Self-reported smoking cessation for 12-months confirmed by a urine cotinine level taken at 12-month follow-up.	14.3% of intervention patients met the primary outcome compared to 2.7% in the control group (P < 0.001). At 3-month follow-up, 27.5% of intervention patients compared to 11% reported cessation of smoking. At 6-month follow-up, 18.5% versus 8.5% patients reported smoking cessation, favouring the intervention group.	Inadequate randomisation method used (sealed envelope) and outcome assessor not blinded. No patients in the PAS group had follow-up appointments after 4 weeks.

Disease State		Smoking cessation			
Reference	Sinclair, HK, Bond CM, Stead LF, 2004, The Cochrane Database of Systemic Reviews, ; :				
Title	Community pharmacy personel interventions for smoking cessation				
Evidence Grading		E1	Systematic review		
Study Type		Systematic review			
Target		Management and/or improving risk & monitoring response			
Source Type		Cochrane			
Outcome Types					
Setting					
Study Characteristics		Intervention	Outcome Measures	Key Findings	Limitations
Systematic review of community pharmacy activities to assist clients to stop smoking. Two trials met inclusion criteria and they included a total of 976 smokers, both were set in the UK.		Randomised controlled trials of intervention by community pharmacy personnel to promote smoking cessation amongst their clients who were smokers compared to usual pharmacy support or less intensive interventions. Both the trials that were included involved a training intervention that included the Stages of Change Model with a support programme	Both studies reported smoking cessation rates (self reported) at three time points.	In both studies a high proportion of patients began using NRT. One study showed a significant difference in cessation rates at 12 months (14.3% compared to 2.7% p<0.001) the other study showed a positive trend at each follow-up (12.0% versus 7.4% p<0.09 at nine months).	

Disease State		Wellness Activities		
Reference	Boyle, T. C., 2004, J Am Pharm Assoc (Wash DC), ; 44: 569-77			
Title	Men's health initiative risk assessment study: effect of community pharmacy-based screening			
Evidence Grading		E2	Randomised Controlled Trial	
Study Type	Randomised Controlled Trial			
Target	Management and/or improving risk & monitoring response			
Outcome Types	Surrogate			
Setting	Community			
TimeFrame	3 months			
Country	UNITED STATES			
Study Characteristics		Intervention	Outcome Measures	Key Findings
Prospective study involving 382 men with potential health risks that were untreated or uncontrolled, or who had not had a physical examination in the past year to determine whether community pharmacists, using a risk assessment tool could encourage these men to visit the physician. Men were recruited from 21 pharmacies. Study participants were randomised to either receive or not receive telephone follow-up within a 12 week period.		Screening for specific health risks with or without telephone follow-up.	Overall response to pharmacist recommendations for follow-up medical care.	The 382 participants were indentified as being at risk of 1194 significant health conditions and 69% had not received a physical examination within the preceeding year. Of men who were recommended to make an appointment, 64% were seen by a physician or were waiting on a scheduled appointment at the completion of the study. No differences were noted between the telephone intervention and control groups in rate of obtaining a physician examination.
				Limitations
				The study is mainly observational, although patients were randomised to receive or not receive telephone follow-up.

Appendix 2 Literature review results

(2001). "ASHP therapeutic position statement on the safe use of pharmacotherapy for obesity management in adults. Developed by the ASHP Commission on Therapeutics and approved by the ASHP Board of Directors on April 23, 2001." Am J Health Syst Pharm **58**(17): 1645-55.

Obesity is a chronic disease that may require pharmacologic treatment in select patients at high risk in whom lifestyle modifications alone were unsuccessful. Although long-term therapy may be indicated in these patients, long-term safety and efficacy data for the current agents are not available. Patients should be informed of all known risks of therapy and, together with their health care providers, carefully consider the risks and benefits of treatment. Patients should be informed that pharmacotherapy has been proven to produce modest weight loss (10% weight loss) when used in conjunction with lifestyle modifications. The health benefits of modest weight loss should be stressed, and lifestyle changes should be continuously encouraged. Pharmacists can take an active role in the management of obesity by assisting in the selection of weight-loss agents and providing appropriate counseling and monitoring to ensure safe and effective drug therapy outcomes for patients using prescription and nonprescription products. Further evaluation of current and future therapies will be necessary to determine the role of long-term pharmacotherapy for the management of obesity.

(2003). "Diabetes demo project puts pharmacists in DM driver's seat." Dis Manag Advis **9**(3): 37-9, 33.

The American Pharmaceutical Association Foundation is implementing a pharmacist-driven DM program that aims to help diabetic participants bring their blood sugar under optimal control. In this model, pharmacists advise and coach patients about their disease on a regular basis, all the while keeping PCPs informed about their patients' progress. The program will begin as a pilot project with five employers, but developers hope early success will make the program attractive to many workplace settings.

Abduelkarem, A. R., M. A. Sackville, et al. (2003). "Views and practices of community pharmacists regarding services for people with type 2 diabetes." International Journal of Pharmacy Practice **11**(3): 161-168.

Objective: To describe the views and practices of community pharmacists regarding services for people with type 2 diabetes. Method: A cross-sectional questionnaire survey of a convenience sample of 317 community pharmacists in the North East of England. The 26-item questionnaire covered the setting of the pharmacy, dispensing medication, and the pharmacist's role in the primary prevention of diabetes, detecting undiagnosed diabetes and prevention of complications. Key findings: There was a 51% response rate. More than 80% of respondents reported that they saw patients with diabetes 'very often' or 'often' when they collected their prescriptions, but three-quarters reported that they 'never/rarely' or only 'sometimes' advised patients what to expect from their medication and gave information to help them have a better understanding of their disease. More than 90% of the pharmacists believed that a healthy lifestyle is important, but the majority were 'never/rarely' or only 'sometimes' involved in its promotion. Around 10 percent of the respondents reported that they 'often' or 'very often' promoted regular eye examinations. Home blood glucose monitoring

was promoted by 50% of the respondents. The majority reported that they checked prescriptions for drug interactions. Conclusion: This study found that community pharmacists' advice and services to people with type 2 diabetes fell short of the standards and objectives set out in the National Service Framework for Diabetes. Our findings can be used to promote discussion in the profession and with stakeholders about the future role of the community pharmacist in diabetes care.

Adcock, H. (2004). "Smoking cessation can be used as service delivery model for pharmacy." Pharmaceutical Journal **272**(7289): 275-276.

Akiyode, O. F. (2002). "Pharmacy-based diabetes screening: Is it necessary?" Ashp Midyear Clinical Meeting **37**(DEC).

The proposed study will evaluate the effectiveness of a diabetes screening program in a community pharmacy setting. With the advent of the new American Diabetes Association position statement that discounts community screening of diabetes in high-risk population based on lack of research study, it is paramount to investigate whether the diabetes screening done in community pharmacy by pharmacists can increase the rate of diabetes diagnosis and improve follow-up care for all individuals screened. Specifically, the study will address the following questions: can pharmacy based diabetes screening identify individuals with impaired fasting glucose or undiagnosed diabetes; and can pharmacy based diabetes screenings provide adequate follow-up care for individuals screened? All study interventions will be held within two community pharmacies located in the Washington, DC area. The research will target individuals at high risk for developing type 2 diabetes, including patients with hypertension, dyslipidemia, etc. The participants will be screened using capillary glucose measurement. Participants with positive screening result will be referred for diabetes diagnostic test. The participants that are diagnosed with diabetes will be followed over a 12 months period with the provision of diabetes education, diet and exercise program, and glycemic control monitoring. The project is formulated with an experimental study design, and will incorporate the use of paired t-tests and analysis of variance (ANOVA) to assess the effectiveness of 12 months follow up care. Overall, the outcome of this study would be instrumental in positioning the role of community pharmacists in diabetes screening within the community pharmacy settings.

Ali, F., M. Y. Laurin, et al. (2003). "The effect of pharmacist intervention and patient education on lipid-lowering medication compliance and plasma cholesterol levels." Can J Clin Pharmacol **10**(3): 101-6.

BACKGROUND: Dyslipidemias are a modifiable risk factor for coronary heart disease. The benefits of cholesterol reduction drug therapies are limited by poor patient compliance with drug regimens. OBJECTIVES: To determine the impact of a community pharmacist pilot disease-management program on patient compliance with lipid-lowering drug therapy and on serum cholesterol levels. METHODS: One hundred forty-nine patients who were nonadherent to prescribed hypolipidemic drug regimens were recruited for this six-month prospective study. Each subject served as their own control. Pharmacists

educated these patients on lipid disorders, the benefit of medication compliance and lifestyle modifications that reduce the risk for coronary heart disease. Pharmacists followed up participants by telephone at two-month intervals. Drug renewal rates were monitored throughout the study and plasma lipid levels were measured at study outset and study end. RESULTS: Pharmacist intervention and patient-education programs significantly increased medication compliance, as shown by a 15.3% increase ($P<0.05$) in the number of compliant patients and an 11 day ($P<0.001$) reduction in the average number of days to prescription renewal. Concurrently, levels of total cholesterol, triglycerides and low-density lipoprotein (LDL) cholesterol, were reduced by 6%, 16.2%, and 8.5% ($P<0.001$, 0.01, 0.01), respectively. High density lipoprotein (HDL) cholesterol remained relatively unchanged (+0.7%) so that the LDL to HDL ratio was improved by 17.2% overall ($P<0.01$). Almost all of the patients (99.2%) were satisfied with the program and expressed a willingness to pay an average \$34.50 per 30 min consultation for the pharmacist services offered. CONCLUSION: Pharmacists can contribute significantly to disease management of dyslipidemic individuals.

Ali, O. (2002). "Get to grips with obesity: (4) How pharmacists can contribute to obesity management." Pharmaceutical Journal **268**(7199): 720-722.

Allan, J., T. A. Barwick, et al. (2004). "Clinical prevention and population health: Curriculum framework for health professions." American Journal of Preventive Medicine **27**(5): 471-476.

The Clinical Prevention and Population Health Curriculum Framework is the initial product of the Healthy People Curriculum Task Force convened by the Association of Teachers of Preventive Medicine and the Association of Academic Health Centers. The Task Force includes representatives of allopathic and osteopathic medicine, nursing and nurse practitioners, dentistry, pharmacy, and physician assistants. The Task Force aims to accomplish the Healthy People 2010 goal of increasing the prevention content of clinical health professional education. The Curriculum Framework provides a structure for organizing curriculum, monitoring curriculum, and communicating within and among professions. The Framework contains four components: evidence base for practice, clinical preventive services-health promotion, health systems and health policy, and community aspects of practice. The full Framework includes 19 domains. The title 'Clinical Prevention and Population Health' has been carefully chosen to include both individual- and population-oriented prevention efforts. It is recommended that all participating clinical health professions use this title when referring to this area of curriculum. The Task Force recommends that each profession systematically determine whether appropriate items in the Curriculum Framework are included in its standardized examinations for licensure and certification and for program accreditation. (C) 2004 American Journal of Preventive Medicine.

Amruso, N. A. (2004). "Ability of clinical pharmacists in a community pharmacy setting to manage anticoagulation therapy." J Am Pharm Assoc (Wash DC) **44**(4): 467-71.

OBJECTIVES: To determine the ability of community pharmacists within an anticoagulation clinic to keep international normalized ratios (INRs) within

therapeutic ranges and, secondarily, to determine the incidence of bleeding and thromboembolic events and patient satisfaction. DESIGN: Retrospective observational study. SETTING: Eckerd PatientCARE Network in Eckerd pharmacies in Tampa Bay area of Florida. PATIENTS: 50 patients taking warfarin and having INR determinations for 6 consecutive months. INTERVENTIONS: Clinical pharmacists monitored patients' anticoagulation status using point-of-care analyzers and making dosage changes as needed under a collaborative agreement. Extensive patient education was provided to patients regarding their anticoagulation. Data were collected from the initial visit through the 6 consecutive months. Patients were surveyed to assess their satisfaction with the clinic. MAIN OUTCOME MEASURES: Percentage of INRs within therapeutic range and, secondarily, incidence of bleeding and thromboembolic events and patient satisfaction with the clinic. RESULTS: During the 6 months of initial therapy with warfarin, 243 of 435 (56%) INRs were in desired therapeutic ranges. A total of 15 bleeding episodes were reported, of which 10 were minor and 5 were significant. No thromboembolic events were reported. There was a 22% response rate to the survey, in which all statements were rated as above average to excellent. CONCLUSION: Community pharmacists in an anticoagulation clinic effectively manage anticoagulation therapy, as the results of this clinic are similar to those of clinics managed by pharmacists in other settings.

Andalo, D. (2003). "Gearing for 'Ask about medicines' week - How you can get involved." Pharmaceutical Journal **270**(7256): 10-11.

Andalo, D. (2004). "'Pop down your local' for health care." Pharmaceutical Journal **272** (7296).

Anderson, C. and A. Blenkinsopp (2003). "The role of the pharmacist in health development." Pharmacy in Practice **13**(1): 16-24.

Pharmacy is well placed to contribute to the wider agenda of health promotion and health development. This article reviews the current evidence of benefit from some pharmacy-led interventions, and highlights areas for future development and partnerships.

Anderson, C. and A. Blenkinsopp (2003). "Community pharmacy's contribution to improving public health: Learning from local initiatives." Pharmaceutical Journal **271** (7273): 623-625.

Aim. To identify recent and current projects involving the contribution of community pharmacy to improving the health of the public. Design. An e-mail survey to health promotion units, CPPE tutors, local pharmaceutical Committee Secretaries and pharmaceutical advisers. E-mail contacts with key informants in Scotland, Wales and internationally. Results. The survey response rate 64% after one reminder. The respondents identified a total of 184 projects. The majority of projects were in the areas of smoking cessation, drug misuse and sexual health. Examples from Europe, Australia and the United States offer models in diabetes, lipid management, weight management and immunisation. Conclusions. Compared with findings from previous surveys, community pharmacy has clearly

begun to build working partnerships with key stakeholders. International models could be adapted and used as the basis for service development in the UK.

Anderson, C., A. Blenkinsopp, et al. (2003). "Pharmacists' perceptions regarding their contribution to improving the public's health: A systematic review of the United Kingdom and international literature 1990-2001." International Journal of Pharmacy Practice 11 (2): 111-120.

Objective: To systematically review, summarise and evaluate the published evidence from 1990-2001 relating to pharmacists' attitudes towards and perceptions of their role in improving the public's health. Methods: Electronic databases searched were MEDLINE, EMBASE, Cochrane Library and International Pharmaceutical Abstracts. Hand searches were undertaken of a number of relevant journals and conference abstracts. Studies on pharmacy and health education, health promotion, public health, smoking cessation, diet, body weight, and coronary heart disease were identified. All relevant studies with an English language abstract were included. Two of the authors separately examined the lists of titles and abstracts of papers from the searches and then compared inclusion/ exclusion lists and resolved any differences by discussion. Two approaches were used to assess the quality of the evidence and each study was allocated an evidence grade. Data were abstracted into a matrix and a narrative report constructed to synthesise the evidence. Key findings: The search identified 12 studies (nine from the UK and three from other countries), all of which involved community pharmacists. Pharmacists attach a high degree of importance to health improvement activities. They are more comfortable with activities that are related to medicines and need support to extend their range of health-related work. Pharmacists' advice is more likely to be reactive than proactive; their concerns about being 'intrusive' in offering potentially unwelcome health advice predisposes to a reactive stance. While dispensing duties were widely reported by pharmacists as a key barrier to greater involvement in activities that improve the public's health, the review of the evidence showed that perceptions and attitudes are also key to pharmacists' behaviour in relation to these activities. Conclusion: Community pharmacists' activities in improving the public's health centre around medicines. This is unsurprising, as dispensing and sale of medicines constitute a pharmacist's core business, and are the areas that they are perceived to be expert in and in which they have received the most training. If pharmacists are to contribute to wider public health activities, ways need to be found of extending their sphere of activity. The review findings have implications for those involved in education and training of pharmacists at undergraduate and postgraduate levels.

Anderson, C., A. Blenkinsopp, et al. (2004). "Feedback from community pharmacy users on the contribution of community pharmacy to improving the public's health: A systematic review of the peer reviewed and non-peer reviewed literature 1990-2002." Health Expectations 7(3): 191-202.

Objective: To systematically review feedback from pharmacy users on their perceptions and experiences of health-related advice and services provided from community pharmacies. Methods: The focus of the review was community pharmacy activities in relation to promoting health and well-being, preventing ill-

health and maintaining health. Searches were conducted for peer-reviewed (international) and non-peer-reviewed (UK) research. Electronic databases searched included MEDLINE, EMBASE, Cochrane Library and International Pharmaceutical Abstracts; hand searches of key journals and conference abstracts, key informants. Key informants in the UK were contacted to identify unpublished studies. The inclusion period was 1990 onwards. Data extraction and synthesis: Data were abstracted into a matrix by one author with a sample checked by a second. The Health Development Agency's Evidence Base 2000 standards and the evidence categories used by the Department of Health in the National Service Frameworks were applied to each item. Main results: Seven peer reviewed papers and 13 non-peer reviewed reports were identified for inclusion in the review. Consumer usage of pharmacies is almost universal with prescription supplies and purchase of over the counter medicines predominating. Evidence shows that not only is usage low for general health advice, but that pharmacists are perceived as 'drugs experts' rather than experts on health and illness. Emergency hormonal contraception and head lice management schemes have been well received. There is a need to consider privacy and confidentiality surrounding advice giving. Conclusions: Users of community pharmacy-based health development initiatives express a high level of satisfaction. If community pharmacies are to be used to their full extent, then actions to extending the public's awareness and acceptance of the pharmacist's role in giving advice will be crucial. Further research will be needed to measure any change in premises development on the public's perception of the level of privacy in pharmacies.

Anderson, C. and R. Rajyaguru (2002). "The role of community pharmacists and medicines counter assistants in health promotion: Reflections from a folic acid campaign." International Journal of Pharmacy Practice **10**(1): 17-22.

Context - In the UK in 1996, the National Pharmaceutical Association collaborated with the Health Education Authority to pilot a resource pack that would enable community pharmacists and their medicines counter assistants to contribute to the promotion of the use of folic acid in planned pregnancy. Objective - To determine the views of pharmacists and medicines counter assistants about the use of the resource pack. Method - Depth interviews were carried out to elicit views, underlying feelings, experiences and attitudes towards staging and managing the project. The data were analysed using the constant comparison as outlined in grounded theory. Themes were identified and quotes from interviewees used to illustrate the themes. Setting - 14 pharmacists and 14 medicines counter assistants in a West London health authority. Key findings - Most pharmacists and medicines counter assistants reported feeling more comfortable when advising regular customers rather than unknown customers. Leaflets, posters and displays were thought to be better ways to target passing trade. The majority of the minority ethnic pharmacists and medicines counter assistants considered that they had an important role in communicating information about folic acid to customers from minority ethnic groups, provided they both spoke the same language. Conclusions - Most pharmacists will only raise sensitive issues, such as the importance of taking folic acid to prevent neural tube defects, with customers with whom they already have a relationship. Stimulating inquiries from passing trade by targeting with leaflets, displays and

other health education resources offers an additional benefit. Pharmacies are an important setting for disseminating health messages to people from minority ethnic groups in their own languages.

Anonymous (2001). "Pharmacists are key in a new model of HIV/AIDS management." Drugs & Therapy Perspectives **17**(7): 13-15.

A new disease management model for HIV/AIDS management calls for the development of a new pharmacy practice, the community-based care centre. Working together with the HIV/AIDS doctor and nutritionist, the speciality HIV/AIDS pharmacist is responsible for all drug-related activities. The centres supply products, services and information in one place, a practice that facilitates information collection, monitoring and sharing. As yet, however, benefits of this model are unproven.

Anonymous (2001). "Pharmacists should have greater role in health improvement, report suggests." Pharmaceutical Journal **267**(7168).

Anonymous (2002). "Pharmacists can educate parents about risks associated with iron deficiency." Pharmaceutical Journal **269**(7228).

Anonymous (2002). "Self-care: Pharmacists can play a part." Pharmaceutical Journal **269**(7219).

Anonymous (2002). "Pharmacists give travel advice in a range of languages." Pharmaceutical Journal **269**(7213).

Anonymous (2002). "Moss unveils Dundee pharmacy with focus on delivering health promotion." Pharmaceutical Journal **269**(7212).

Anonymous (2002). "Pharmacy records could be used to enhance statin compliance in elderly." Pharmaceutical Journal **269**(7208).

Anonymous (2002). "Pharmacy and voluntary sector should be partners in health promotion." Pharmaceutical Journal **268**(7204).

Anonymous (2002). "Wales is 'squandering' pharmacy's potential contribution to health care." Pharmaceutical Journal **268**(7196).

Anonymous (2002). "Health campaigning." Pharmaceutical Journal **268**(7193).

Anonymous (2002). "Promoting health." Pharmaceutical Journal **268**(7192).

Anonymous (2002). "Ways that pharmacy services in prisons can improve the health of inmates." Pharmaceutical Journal **268**(7191): 427-428.

Anonymous (2002). "Society supports Easter health care advice campaign." Pharmaceutical Journal **268**(7191).

Anonymous (2002). "Osteoporosis scanning through community pharmacy."

Pharmaceutical Journal **268**(7191).

Anonymous (2002). "Society promotes pharmacy's 'healthy Scotland' potential to MSPs." Pharmaceutical Journal **268**(7189).

Anonymous (2002). "Awareness week stresses pharmacy's part in NHS." Pharmaceutical Journal **268**(7188).

Anonymous (2002). "Moss boosts health promotion with NHS Scotland money." Pharmaceutical Journal **268**(7187).

Anonymous (2002). "Moss osteoporosis counselling." Pharmaceutical Journal **268**(7183).

Anonymous (2002). "Pharmacy in the future: Students' views." Pharmaceutical Journal **268**(7180): 11-12.

Anonymous (2003). "Are pharmacists key to modernisation of chronic disease management?" Pharmaceutical Journal **271**(7277).

Anonymous (2003). "Pharmacy needs to be more fully integrated into public health plans." Pharmaceutical Journal **271**(7277).

Anonymous (2003). "Irish 'Ask about medicines'." Pharmaceutical Journal **271**(7274).

Anonymous (2003). "How pharmacy can tackle obesity." Pharmaceutical Journal **271**(7273).

Anonymous (2003). "World congress of pharmacy and pharmaceutical sciences: Drug prescribers and pharmaceutical carers in integrated health care." Pharmaceutical Journal **271**(7267): 380-382.

Anonymous (2003). "Drug misuse leaflet." Pharmaceutical Journal **271**(7266).

Anonymous (2003). "Pharmacists asked to take part in BP testing week." Pharmaceutical Journal **271**(7260).

Anonymous (2003). "Long-service awards for needle exchange pharmacies in Bradford." Pharmaceutical Journal **271**(7260).

Anonymous (2003). "Unpublished studies support role of community pharmacy in public health." Pharmaceutical Journal **270**(7241).

Anonymous (2003). "Society to develop public health strategy." Pharmaceutical Journal **270**(7237).

Anonymous (2003). "Leaflet promotes pharmacist's primary care role in Wales." Pharmaceutical Journal **270**(7236).

Anonymous (2003). "Supermarket pharmacy provides time for proper discussion with patients." Pharmaceutical Journal **270**(7235).

Anonymous (2003). "Pharmacists need to be proactive in the care of patients with diabetes." Pharmaceutical Journal **270**(7232): 75-77.

In summary, there is plenty of scope for pharmacists to get involved in helping deliver the standards of care set out in the NSF for Diabetes. However, they need to be proactive if they are to take part and make a difference to patient care.

Anonymous (2004). "Diabetes resource pack for community pharmacists." Pharmaceutical Journal **273**(7327).

Anonymous (2004). "Health screening takes off in Pembrokeshire." Pharmaceutical Journal **273**(7325).

Anonymous (2004). "Government officials mark launch of Ask About Medicines Week." Pharmaceutical Journal **273**(7324).

Anonymous (2004). "Pharmacists and veterinary surgeons: Cooperating on animal care." Veterinary Record **155**(17): 509-511.

Anonymous (2004). "UK pharmaceutical public health specialist register on the cards." Pharmaceutical Journal **273**(7322).

Anonymous (2004). "Can pharmacists rise to the challenge of chronic disease management?" Pharmaceutical Journal **273**(7321).

Anonymous (2004). "MP gets health check in Co-op pharmacy." Pharmaceutical Journal **273**(7319).

Anonymous (2004). "Pharmacists test blood pressure across the UK." Pharmaceutical Journal **273**(7317).

Anonymous (2004). "Medicine and driving campaign launched." Pharmaceutical Journal **273**(7313).

Anonymous (2004). "Co-op pharmacists to take public health to men in bars." Pharmaceutical Journal **273**(7313).

Anonymous (2004). "Pharmacy consulting areas wanted by men." Pharmaceutical Journal **272**(7303).

Anonymous (2004). "Guide to how pharmacists can tackle public health." Pharmaceutical Journal **273**(7310).

Anonymous (2004). "Telford pharmacies in chlamydia screening trial." Pharmaceutical

Journal **273**(7310).

Anonymous (2004). "Community Pharmacy Wales four-year vision statement." Pharmaceutical Journal **273**(7308).

Anonymous (2004). "Lancet concludes that OTC statins are not the answer." Pharmaceutical Journal **272**(7300).

Anonymous (2004). "Moss weight management." Pharmaceutical Journal **272**(7299).

Anonymous (2004). "Men's health should be taken into account in policy decisions." Pharmaceutical Journal **272**(7296).

Anonymous (2004). "Public health consultation is an opportunity for pharmacy, task group member says." Pharmaceutical Journal **272**(7296).

Anonymous (2004). "Mythical millions." Pharmaceutical Journal **272**(7295).

Anonymous (2004). "Task groups set up to advise on public health." Pharmaceutical Journal **272**(7294).

Anonymous (2004). "Moss stop smoking campaign." Pharmaceutical Journal **272**(7289).

Anonymous (2004). "Northern Ireland gets new pharmacy strategy." Pharmaceutical Journal **272**(7286).

Anonymous (2004). "Pharmacy needs to have a role in tackling obesity." Pharmaceutical Journal **272**(7286).

Anonymous (2004). "Pharmacists need more support and better incentives to improve public health advice." Pharmaceutical Journal **272**(7285).

Anonymous (2005). "Pharmacists to be recruited to new study tackling alcohol misuse." Pharmaceutical Journal **274**(7336).

Anonymous (2005). "Bids open for pharmacy chlamydia screening pilot." Pharmaceutical Journal **274**(7336).

Aquilino, M. L., K. B. Farris, et al. (2003). "Smoking-cessation services in Iowa community pharmacies." Pharmacotherapy **23**(5): 666-73.

STUDY OBJECTIVE: To examine community pharmacy practice with regard to providing smoking-cessation counseling. DESIGN: Mailed survey. SETTING: Iowa community pharmacies. PARTICIPANTS: A stratified random sample of pharmacists statewide. MEASUREMENTS AND MAIN RESULTS: Descriptive statistics were computed for all study variables. Fisher exact test or chi2 analysis was performed on selected variables to determine the relationship of each item with pharmacists routinely offering smokers suggestions for quitting. Responses from 129 (38.2%) of 338 pharmacists indicated that although most felt it is

important to offer smoking-cessation counseling, about half actually offer this service. Most pharmacists indicated they are prepared to provide counseling, but fewer than 25% had received formal training or were aware of national clinical practice guidelines. Those who had received specific training ($p=0.020$) or recently attended an educational program ($p=0.014$) on smoking cessation were more likely to counsel smokers. Primary barriers to providing counseling were lack of time, inability to identify smokers, low patient demand, and lack of reimbursement. CONCLUSION: Our findings suggest that opportunities exist for improving pharmacist education and reducing practice barriers in order to bridge the gap between pharmacists' knowledge and attitudes related to smoking-cessation counseling and their provision of patient counseling in community pharmacy practice.

Armor, B. L. and M. L. Britton (2004). "Diabetes mellitus non-glucose monitoring: point-of-care testing." Ann Pharmacother **38**(6): 1039-47.

OBJECTIVE: To review and evaluate reimbursable point-of-care testing devices yielding immediate results, other than glucometers, that are available to evaluate and monitor diabetes and its complications and to describe how pharmacists may use these devices. DATA SOURCES: A MEDLINE search (1966-March 2003) was performed using the following search terms: point-of-care systems, clinical diabetes monitoring, decision support systems, glycosylated hemoglobin, and microalbumin. Pertinent company and product Web sites and customer service departments were accessed for information about point-of-care devices and supplies. STUDY SELECTION AND DATA EXTRACTION: All descriptive, evaluative, and comparative articles and product information were reviewed, and relevant information was included. DATA SYNTHESIS: Diabetes mellitus is a complex, chronic metabolic disease that is a challenging management problem and requires routine monitoring for disease control and screening for complications. Point-of-care tests are available to monitor hemoglobin A(1c), glucose, fructosamine, ketones, lipid profiles, urinary microalbumin concentrations, and alanine aminotransferase concentrations. Many of these tests are Clinical Laboratory Improvement Amendments (CLIA)-waived and, therefore, practical for pharmacists to use in a variety of settings. Tests for measuring sensation are also discussed. Pharmacists should consider each of these tests in the establishment of a comprehensive diabetes care service. CONCLUSIONS: The availability of many new point-of-care testing methods creates new opportunities for pharmacists to monitor drug therapy and screen for complications in patients with diabetes. Reimbursement is possible since many of these tests are CLIA-waived.

Armour, C. L., S. J. Taylor, et al. (2004). "Implementation and evaluation of Australian pharmacists' diabetes care services." J Am Pharm Assoc (Wash DC) **44**(4): 455-66.

OBJECTIVE: To implement and evaluate a specialized service for type 2 diabetes mellitus in the community pharmacy. DESIGN: Parallel group, multisite, control versus intervention, repeated measures design, with three different regions in New South Wales, Australia, used as intervention regions, then matched with control regions as much as possible. INTERVENTION: Following training, pharmacists followed a clinical protocol over 9 months, with

approximately monthly intervention site visits during which blood glucose readings were downloaded and discussed with the patient, interventions were documented, and goals set with each patient. MAIN OUTCOME MEASURES: Quality of life, well-being, risk of nonadherence, and glycosylated hemoglobin (A1C) values at the beginning and end of the study. Blood glucose levels were measured in intervention patients only. RESULTS: A total of 106 intervention and 82 control patients completed the study. Patient groups were similar at baseline. Pharmacists delivered 1,459 interventions and blood glucose levels were significantly reduced in all intervention regions. The proportion of patients with A1C values greater than 7% was similar in control sites at baseline (54%) and after 9 months (61%). In intervention sites this proportion was significantly reduced, from 72% at baseline to 53% after 9 months. Well-being and the risk of nonadherence were significantly improved in intervention patients. CONCLUSION: Implementation of a specialized service for diabetes in community pharmacy resulted in better diabetes control and health care outcomes for the patient.

Atthobari, J., T. B. M. Monster, et al. (2004). "The effect of hypertension and hypercholesterolemia screening with subsequent intervention letter on the use of blood pressure and lipid lowering drugs." British Journal of Clinical Pharmacology **57**(3): 328-336.

Aim: To evaluate the effect of a letter intervention that was sent to both the participants of a population screening and their general practitioners. We also tested what predicting variables influenced the GP to actually prescribe blood pressure lowering drugs (BPLD) or lipid lowering drugs (LLD). Method: The study design was cross sectional, in the PREVEND outpatient clinic in Groningen University Hospital, the Netherlands. We used the clinical data of the 8592 subjects that participated in the first screening of the PREVEND study. Data on drug use was collected from community pharmacies. Drug use was measured the year before and after the screening with the subsequent intervention letter. As control population without intervention, we used the data from the InterAction DataBase (IADB) standardized for the population characteristics of the intervention group. The letter intervention was sent to participants who had shown after screening to have either an elevated blood pressure or plasma cholesterol, and the letter contained the advice to use a BPLD or LLD. Main outcome measures were proportion of patients prescribed BPLD and/or LLD in the year before and after the intervention, and variables that influence the GP to prescribe BPLD and LLD. Results: Data from the community pharmacy were available from 7567 (88%) subjects. 397 participants (5.2%) received a letter with advice to start a BPLD, and 326 participants (4.3%) received a letter with advice to start a LLD. The prevalence of patients who were using BPLD and LLD before the intervention was not significantly different between the intervention and control group, 16.6 (CI 95% 15.8 -17.5) vs 16.0 and 4.8 (4.4-5.3) vs 4.6, respectively. After the letter intervention, the prevalence of BPLD use was higher in the intervention group compared with the control group (19.4 [18, 5-20, 3] vs 17.0%), as was the prevalence of LLD use (7.1 [6.5-7.7] vs 5.4%). The same held true for the incidence of BPLD (3.4[3.0-3.8] vs 2.5%) and LLD use (2.1 [1, 6-2, 4] vs 1.0%), respectively, in the year after the intervention. Univariate and

multivariate analysis showed that a higher blood pressure and cholesterol level, but not the presence of other cardiovascular risk factors, were associated to with a greater percentage use of a BPLD and a LLD. Conclusion: A population survey followed by a letter of intervention to both the patient and GP are effective to improve the use of blood pressure and lipid lowering drugs as a primary prevention in patients with hypertension and hyperlipidemia. Our therapeutic advice however, was followed only in about one of the three subjects with hypertension and one of the four subjects with hyperlipidemia. The levels of blood pressure and plasma total cholesterol are important variables influencing the GP to prescribe a BPLD and/or LLD.

Babb, V. J. and J. Babb (2003). "Pharmacist involvement in Healthy People 2010." J Am Pharm Assoc (Wash) **43**(1): 56-60.

OBJECTIVES: To review opportunities through which pharmacists can help the United States achieve its public health goals as expressed in Healthy People 2010, a document issued by the federal government that expresses the areas of focus for Americans in the first decade of the 21st century. SUMMARY: Healthy People 2010 provides general goals for 10 leading health indicators (such as tobacco use, over-weight and obesity, and immunizations), and these are then further subdivided into 28 focus areas, many of them with quantifiable goals (such as, "Reduce hospitalization rates for three ambulatory care-sensitive conditions--pediatric asthma, uncontrolled diabetes, and immunization-preventable pneumonia and influenza."). As health care professionals, pharmacists have the responsibility to help the country meet these goals. Ideas for increased pharmacist involvement are described in the article, including the conduct of screening programs and provision of specialized services that focus on such areas as hypertension, diabetes, asthma, patient education, smoking cessation, or general medication management. Pharmacists can build their efforts in these and similar areas by collaborating with physicians and other appropriate professionals, identifying target patients who have obtained services at the pharmacy, contacting patients in at-risk populations within the pharmacy's patient base and/or the community, choosing and monitoring an objective of interest, and maintaining efforts for sustained time periods. CONCLUSION: The message of Healthy People 2010 is that the health of the individual is closely linked to the health of the community and hence the health of the nation. Pharmacists, uniquely positioned as the most accessible health care providers in the community, can dedicate their considerable strengths toward using Healthy People 2010 as a tool to organize their own efforts and motivate their patients.

Bacon, L., I. Savage, et al. (2003). "Training and supporting pharmacists to supply progestogen-only emergency contraception." Journal of Family Planning & Reproductive Health Care **29**(2): 17-22.

Objective. To describe and evaluate the training and support provided to the first cohort of community pharmacists to supply progestogen-only emergency contraception (POEC) under a Patient Group Direction (PGD) in Lambeth, Southwark and Lewisham, London. Design. The study comprised (a) a systematic analysis of written and oral data from pharmacists before and during training, and at 5 and 13-14 months after launch; (b) analysis of telephone calls

to clinical support and (c) analysis of written pharmacy records. Subjects. A total of 20/22 pharmacists in the first training cohort; 6123 pharmacists who applied but were not accepted were also followed up. Results. A formal course with role-play was a successful training method, and the course also served as a team-building exercise. Subsequent interviews demonstrated that pharmacists had understood the concept of client confidentiality and gained confidence over time in the use of the PGD. The on-call consultants received 152 calls in the first 12 months of the scheme. Over 80% of the calls concerned clinical criteria (notably including 22% that were queries about oral contraceptives). Frequency ranged from one to eight calls per week with 28% made at weekends. In over half (60%) of the calls the pharmacist was subsequently able to make a supply. Queries over client management resulted in several changes in the protocol. The primary expressed concern for all pharmacists at all time points was how clients might 'misuse' or 'abuse' the service, and this remained a concern despite the fact that it also applies to other routes of supply of POEC. However, the PGD cohort was more positive on local benefits than pharmacists who were not selected. Conclusions. Training and support have enabled this often-underused group of professionals to participate in an extended reproductive health service. Mobile phones are an essential support tool.

Badger, F., T. Kingscote-Davies, et al. (2002). "The pharmacist's role in the medicinal management of depression." Nurs Stand **16**(47): 33-40.

AIM: To elicit pharmacists' perceptions of medication management for people who have been prescribed medication for depression. METHOD: A questionnaire survey of 103 mainly community pharmacists was used. RESULTS: People frequently approached pharmacists for information about a range of issues concerning antidepressant medication. Although pharmacists were knowledgeable about all aspects of pharmacological interventions, many felt their location in the commercial sector inhibited the amount of assistance they could provide. Barriers to providing information were identified, and the paucity of pharmacists' links with primary care teams exposed. CONCLUSION: The survey supports other studies that have suggested pharmacists could provide considerable assistance in helping people to understand their medication and its benefits. There is also discussion of the ways in which the future role of pharmacists could be developed so that they collaborate more closely with other healthcare professionals.

Baines, D. and C. Hale (2004). "How should community pharmacists be paid under the new contract?" Pharmaceutical Journal **273**(7309): 119-120.

Barbanel, D., S. Eldridge, et al. (2003). "Can a self-management programme delivered by a community pharmacist improve asthma control? A randomised trial." Thorax **58** (10): 851-4.

BACKGROUND: No randomised studies have addressed whether self-management for asthma can be successfully delivered by community pharmacists. Most randomised trials of asthma self-management have recruited participants from secondary care; there is uncertainty regarding its effectiveness in primary care. A randomised controlled study was undertaken to determine

whether a community pharmacist could improve asthma control using self-management advice for individuals recruited during attendance at a community pharmacy. **METHODS:** Twenty four adults attending a community pharmacy in Tower Hamlets, east London for routine asthma medication were randomised into two groups: the intervention group received self-management advice from the pharmacist with weekly telephone follow up for 3 months and the control group received no input from the pharmacist. Participants self-completed the North of England asthma symptom scale at baseline and 3 months later. **RESULTS:** The groups were well matched at baseline for demographic characteristics and mean (SD) symptom scores (26.3 (4.8) and 27.8 (3.7) in the intervention and control groups, respectively). Symptom scores improved in the intervention group and marginally worsened in the control group to 20.3 (4.2) and 28.1 (3.5), respectively ($p < 0.001$; difference adjusted for baseline scores = 7.0 (95% CI 4.4 to 9.5). **CONCLUSIONS:** A self-management programme delivered by a community pharmacist can improve asthma control in individuals recruited at a community pharmacy. Further studies should attempt to confirm these findings using larger samples and a wider range of outcome measures.

Barbour, D. M. (2001). "Development and implementation of a tobacco consultation program for managed care pharmacists." Am J Health Syst Pharm **58**(3): 210-3.

Barner, J. C., C. M. Brown, et al. (2002). "Public health services provided by community and migrant health center pharmacists." Journal of Social & Administrative Pharmacy **19**(4): 122-128.

Objective: This study assessed the frequency, importance, and preparedness of public health services (PHSs) provided by pharmacists in community and migrant health centers (C/MHCs). **Method:** A self-administered mail survey was utilized to collect information on the provision of PHSs, pharmacist and site-specific characteristics, and affiliations with colleges/schools of pharmacy (C/SOPs). **Setting:** Community and migrant health center pharmacists across the United States. **Key Findings:** Responding pharmacists (N=138) provided PHSs only sometimes; they perceived them to be moderately to very important; and they felt moderately prepared to provide these services. Respondents who were affiliated with a C/SOP and those who received additional education and training reported that they provided PHSs significantly more often. In addition, nonwhite respondents' perceptions of importance and preparedness regarding PHSs were significantly higher when compared to white respondents. **Conclusion:** Although pharmacists' provision of PHSs was low, affiliations with C/SOPs and additional education and training had a positive impact on the frequency of the provision of these services.

Barnett, L. M., E. Van Beurden, et al. (2004). "Program sustainability of a community-based intervention to prevent falls among older Australians." Health Promotion International **19**(3): 281-288.

Multi-strategy interventions have been demonstrated to prevent falls among older people, but studies have not explored their sustainability. This paper investigates program sustainability of Stay on Your Feet (SOYF), an Australian multi-strategy falls prevention program (1992-1996) that achieved a significant reduction in

falls-related hospital admissions. A series of surveys assessed recall, involvement and current falls prevention activities, 5 years post-SOYF, in multiple original SOYF stakeholder groups within the study area [general practitioners (GPs), pharmacists, community health (CH) staff, shire councils (SCs) and access committees (ACs)]. Focus groups explored possible behavioural changes in the target group. Surveys were mailed, except to CH staff and ACs, who participated in guided group sessions and were contacted via the telephone, respectively. Response rates were: GPs, 67% (139/209); pharmacists, 79% (53/67); CH staff, 63% (129/204); SCs, 90% (9/10); ACs, 80% (8/10). There were 73 older people in eight focus groups. Of 117 GPs who were practising during SOYF, 80% recalled SOYF and 74% of these reported an influence on their practice. Of 46 pharmacists operating a business during SOYF, 45% had heard of SOYF and 79% of these reported being 'somewhat' influenced. Of 76 community health staff (59%) in the area at that time, 99% had heard of SOYF and 82% reported involvement. Four SCs retained a SOYF resource, but none thought current activities were related. Seven ACs reported involvement, but no activities were sustained. Thirty-five focus group participants (48%) remembered SOYF and reported a variety of SOYF-initiated behaviour changes. Program sustainability was clearly demonstrated among health practitioners. Further research is required to assess long-term effect sustainability.

Baxton, A. (2003). "The National Health Service pharmacy contract in England." Pharmaceutical Journal **271**(7268): 406-408.

Becker, D., S. G. Garcia, et al. (2004). "Do Mexico City pharmacy workers screen women for health risks when they sell oral contraceptive pills over-the-counter?" Contraception **69**(4): 295-9.

CONTEXT: In Mexico, oral contraceptives (OCs) are available to women over-the-counter in pharmacies. While past research has suggested that nonmedical providers, such as pharmacy workers, are capable of screening women for contraindications to OCs, little is known about their practices. METHODS: After selecting a 10% random sample of all pharmacies in Mexico City (n = 108), we surveyed the first available pharmacy worker to learn more about pharmacy workers' screening practices when selling OCs over-the-counter to women. RESULTS: While nearly all of the pharmacy workers surveyed had sold OCs without a prescription, only 31% reported asking women any questions before selling pills. Among those who asked questions, the most commonly asked questions were about other medications a woman was taking, about blood pressure and about alcohol intake. Pharmacy workers did not ask these questions consistently to all clients. CONCLUSION: Training pharmacy workers might be one strategy to improve screening of women for pill contraindications. However, pharmacy workers may lack the time and motivation to carry out such screening. An alternative strategy might be to better inform women to self-screen for pill contraindications.

Bednall, R. (2001). "Smoking cessation - Evidence-based intervention." Pharmacy in Practice **11**(4): 125-129.

Smoking results in a significant drain on the healthcare resources of this country.

As health care professionals, pharmacists are ideally placed to promote the benefits of a smoke-free life-style. Every opportunity should be taken to pass on this message to smokers we encounter - because EVERY LITTLE HELPS.

Bellingham, C. (2001). "'Kiss smoking goodbye' - How pharmacists can help." Pharmaceutical Journal **266**(7138): 319-321.

Next Wednesday, March 14, is No Smoking Day. Over a million smokers attempt to quit on this day and many of them turn to their local pharmacist for help. Clare Bellingham investigates what pharmacists are doing to promote No Smoking Day and the smoking cessation services pharmacists may offer.

Bellingham, C. (2002). "Pharmacists can help smokers stop so why are they not properly funded?" Pharmaceutical Journal **268**(7188): 321-322.

Bellingham, C. (2002). "Pharmacy strategy launched in Scotland." Pharmaceutical Journal **268**(7184): 168-169.

Bellingham, C. (2003). "A new vision for pharmacy in the future." Pharmaceutical Journal **271**(7259): 111-112.

Bellingham, C. (2004). "A role in promoting healthy lifestyles." Pharmaceutical Journal **273**(7319).

Bellingham, C. (2004). "Major public health role for pharmacy." Pharmaceutical Journal **272**(7304): 761-762.

Bellingham, C. (2004). "Campaigning to improve men's health." Pharmaceutical Journal **272**(7296).

Bellingham, C. (2004). "How to improve contraception services." Pharmaceutical Journal **272**(7285): 149-150.

Bellingham, C. (2005). "How pharmacists can support self-care." Pharmaceutical Journal **274**(7333).

Benrimoj, S. I. and M. S. Frommer (2004). "Community pharmacy in Australia." Aust Health Rev **28**(2): 238-46.

This article describes the evolution of community pharmacy in the Australian health system, and assesses its current and potential future contribution to health care. A central theme is the unique extent and accessibility of community pharmacy to the public, with a vast and dispersed infrastructure that is funded by private enterprise. The viability of community pharmacy as a retail trade depends on a diversification of its service roles and retention of its product-supply roles. Initiatives by the pharmacy profession, the pharmacy industry and the Australian Government are likely to give community pharmacy an increasingly prominent place in health promotion and primary, secondary and tertiary prevention, especially in relation to the management of chronic diseases.

Bheekie, A., J. A. Syce, et al. (2001). "Peak expiratory flow rate and symptom self-

monitoring of asthma initiated from community pharmacies." J Clin Pharm Ther **26**(4): 287-96.

OBJECTIVE: To compare the use of patient-performed peak expiratory flow (PEFR) and symptom monitoring as asthma self-management tools initiated from community pharmacies. **DESIGN AND SETTING:** 110 patients over 6 years of age were recruited from five private-sector community pharmacies. Patients were identified from pharmacist recall as having 'asthma'. Information on the frequency of their asthma symptoms, medication use, level of physical activity, school or work attendance and lung function was obtained using a questionnaire to classify patients as either mild, moderate or severe. Each patient was alternately assigned to either the symptom or PEFR monitoring procedure in the order they were recruited. Patients performing symptom monitoring used a visual analogue scale to assess symptoms, whereas those in the PEFR monitoring group assessed symptoms and used a pocket-size peak flow meter to measure lung function. Both self-monitoring groups were required to adhere to an individualized management plan based on guideline recommendations and to record their monitored data in a diary card for 2 months. Data from the diary cards were reviewed, collated, transcribed and analysed using the Student t and Mann-Whitney tests. **OUTCOME MEASURES:** The average monthly frequency of appropriate patient responses determined from their adherence to the self-management plan was used to compare the usefulness of symptom and PEFR self-monitoring. In particular, appropriate use of medication and need for medical consultation was compared. **RESULTS:** 21 symptom and 40 PEFR-assigned patients completed 2 months' monitoring. The average monthly frequency of appropriate responses in patients using PEFR (0.76) was significantly higher than that of patients using symptom monitoring (0.53, $P < 0.006$). Patients applying symptom monitoring had a higher monthly frequency (0.39) of inappropriate medication use compared to the PEFR group (0.14). Furthermore, the patients' mean daily symptom scores (2.85) were significantly lower than that estimated by the researcher (4.12, $P < 0.03$). For all three asthma severity groups a higher monthly average of appropriate responses was observed in patients using PEFR monitoring compared to those who used symptom monitoring. **CONCLUSION:** PEFR self-monitoring proved to be a more useful asthma tool than symptom self-monitoring. Patients applying symptom monitoring tend to underestimate the severity of their condition and use medication inappropriately. Active involvement of community pharmacists in facilitating and reinforcing out-patient self-monitoring would help to optimize asthma management.

Blake, E. W., M. M. Blair, et al. (2003). "Perceptions of pharmacists as providers of immunizations for adult patients." Pharmacotherapy **23**(2): 248-54.

Pharmacists have been involved with patient care at the Family Medicine Center, affiliated with the Medical University of South Carolina, for over 20 years. In 1999, to add to existing clinical services, pharmacists administered immunizations (influenza and pneumonia) to over 400 adult patients during clinic visits in designated patient care rooms. A few months after the immunization period, both health care providers and immunized patients were asked to respond to a survey regarding their opinions of pharmacist-administered

immunizations. Response rates were 71% for health care providers and 16% for all immunized patients. Most (90%) of the health care respondents felt comfortable with pharmacists providing immunizations and thought it was appropriate for pharmacists to provide this service. However, 35% of the providers did not agree that pharmacists should provide immunizations in local pharmacies. Most (97%) of the immunized patients felt comfortable with their provider but did not recall that a pharmacist had administered the immunization. In addition, 64% questioned the qualifications of a pharmacist to administer immunizations, and only 43% felt comfortable having a community pharmacist administer a vaccine. By extrapolation of these data, one can determine that patients do not regard pharmacists as qualified providers of immunizations. Further study of patient perception of pharmacists in this role is being conducted.

Blenkinsopp, A., C. Anderson, et al. (2003). "Systematic review of the effectiveness of community pharmacy-based interventions to reduce risk behaviours and risk factors for coronary heart disease." J Public Health Med **25**(2): 144-53.

BACKGROUND: The aim of the study was to provide a critical and comprehensive overview of the published peer-reviewed evidence relating to community pharmacy-based activity in the reduction of risk behaviours and risk factors for coronary heart disease (CHD). **METHOD:** Electronic databases were searched from 1 January 1990 to 1 February 2001. Hand searches for the same period were undertaken of specific journals and proceedings of peer-reviewed conference abstracts. Data abstracted from publications included: participants/setting; study designs intervention including training); outcome measures; key findings. **RESULTS:** Four randomized controlled trials (RCTs) were identified, two in smoking cessation and two in lipid management. All met review criteria and were included. Two (RCTs) involving 976 subjects and three non-randomized experimental studies were identified that evaluated the effectiveness of community pharmacy advice in smoking cessation. Two controlled trials and one before-and-after study investigated the effect of training on pharmacists' smoking cessation advice. One attitudinal survey collected data on reactive and proactive smoking cessation advice-giving by community pharmacists. Two RCTs involving 642 subjects, and two observational studies were identified for community pharmacy-based lipid management. The published studies provided evidence of clinical and cost-effectiveness of community pharmacy services from UK RCTs in smoking cessation, and from US and Canadian RCTs in lipid management in the prevention of heart disease. Although the role of the community pharmacy in disease detection and case finding has been widely discussed, only a small number of studies was found. The findings indicated that further investigation is warranted in these areas. **CONCLUSION:** The peer-reviewed literature demonstrates the contribution of community pharmacy-based services to the reduction of risk behaviours and risk factors for CHD. The evidence supports the wider provision of smoking cessation and lipid management through community pharmacies. Health commissioners and planners can use the findings of this review to incorporate community pharmacy based health development activities into local health services. Further research is needed into the contribution of community pharmacy to disease detection and case finding as part of local public health strategies.

Blenkinsopp, A., J. Tann, et al. (2002). "Evaluation of feasibility and acceptability of a community pharmacy health promotion scheme - Views of users and providers." Health Education Journal **61**(1): 52-69.

Objectives To analyse client uptake and obtain feedback on pharmacists' health promotion interventions; to consider pharmacists' perspectives on providing health promotion inputs. **Design** Telephone interviews with clients, stakeholders and pharmacists. **Analysis** of client questionnaires. **Setting** Community pharmacies in one health authority area in England. **Method** Eleven community pharmacists took part in a scheme to offer health promotion advice to the public about four topics: exercise, dental health, smoking cessation and medicines. The scheme used a behavioural change model drawing on the Transtheoretical Model (TTM) and Motivational Interviewing. The pharmacists received a specific training programme (six days in total). Clients were offered a brief 'Level 1' intervention with a second, extended 'Level 2' where the pharmacist and client thought it necessary. The evaluation included interviews with clients (29), participating pharmacists (9) and stakeholders (7) together with an analysis of client feedback questionnaires. **Results** In total 301 Level 1 and 30 Level 2 interventions were provided by the pharmacists. The most popular topic was smoking cessation (140 Level 1 and 29 Level 2) and the least popular, exercise (21 Level 1). Client questionnaires and interviews showed that clients valued the advice they received. Pharmacists' motivations for participating and their level of proactivity and networking were variable. There was some evidence that limiting the pharmacist's input to one Level 1 and one Level 2 session may provide insufficient flexibility to meet clients' needs. Furthermore, while the TTM has a good fit with some health promotion topics, there are others where a straightforward information-giving model might be more suitable. **Conclusion** The health promotion scheme was well received by clients, many of whom had not previously sought health advice from the pharmacist. The findings of this study should give pharmacists more confidence to proactively offer health promotion advice to clients and indicate scope for extending the provision of such advice.

Bourdet, S. V., M. Kelley, et al. (2003). "Effect of a pharmacist-managed program of pneumococcal and influenza immunization on vaccination rates among adult inpatients." Am J Health Syst Pharm **60**(17): 1767-71.

Boyle, T. C., J. Coffey, et al. (2004). "Men's health initiative risk assessment study: effect of community pharmacy-based screening." J Am Pharm Assoc (Wash DC) **44**(5): 569-77.

OBJECTIVES: To determine whether community pharmacists using a risk assessment tool could encourage men who were overdue for a physical examination to visit a physician and to calculate the return on investment from the pharmacy perspective for offering a complimentary risk assessment service. **DESIGN:** 12-week, prospective cohort study using convenience sampling among men who visited participating pharmacies. **SETTING:** Cross-section of community pharmacies. **PATIENTS:** 382 men aged 25-74 years with potential health risks that were untreated or uncontrolled, or who had not had a physical examination within the past year. **INTERVENTION:** Screening for specific health risks with or without telephone follow-up. **MAIN OUTCOME MEASURE:** Overall

male patient response to pharmacist recommendations for follow-up medical care. RESULTS: Of 382 men identified by the Men's Health Risk Assessment Tool (MHRAT) as being at risk for 1,194 significant health conditions (mean, 3.1 conditions per patient), 69% had not received a physical examination from a physician for a period ranging from more than 1 year to 22.6 years. Of men who were recommended to make an appointment, 64% were seen by a physician or were waiting on a scheduled appointment at the end of the study. No differences were seen between the telephone intervention group and the control group in rates of obtaining a physician examination. CONCLUSION: A positive public health initiative involving community pharmacists was demonstrated in this study. Community pharmacists had a significant impact on motivating men to see a physician for follow-up care once a potential health risk was identified. The MHRAT and the pharmacist recommendation or patient education were the motivating factors and not follow-up telephone interventions by the pharmacist. Given community pharmacists' unique accessibility, an enormous opportunity exists for community pharmacists to raise awareness of men's health care and influence men's health behavior.

Brazier, N. and M. Levine (2002). "An evaluation of the quality of herbal product information provided by health food store retailers and pharmacists in a Canadian city." Can J Clin Pharmacol **9**(2): 108-9.

Brook, O., H. van Hout, et al. (2003). "Impact of coaching by community pharmacists on drug attitude of depressive primary care patients and acceptability to patients; a randomized controlled trial." Eur Neuropsychopharmacol **13**(1): 1-9.

OBJECTIVE: To investigate whether an intervention by Dutch community pharmacists improves the drug attitude of depressive patients, who are prescribed a nontricyclic antidepressant by their general practitioner (GP). METHOD: A randomized controlled trial with a 3-month follow-up was conducted among consecutive general practice patients who go to 19 pharmacists for antidepressants. The trial consisted of a control group (n=79) that received usual care and an intervention group (n=69) that received three drug coaching contacts at the pharmacy and a 25-min take-home video on the background of depression and the effects of medication. OUTCOME MEASURE: Drug attitude (DAI). RESULTS: At the baseline measurement there were no significant differences between the intervention and control group on any demographic and health status variables or on clinical symptoms. At the 3-month follow-up intervention patients had a better drug attitude ($P=0.03$) than their controls and evaluated the coaching of their pharmacist as more positive. They also felt the video to be useful. It had changed their ideas about medication. CONCLUSIONS: Coaching by community pharmacists is an effective way to improve drug attitude of depressive primary care patients and it is acceptable to them.

Buckley, B. and J. Buckley (2003). "Glycemic control is key to managing diabetes." Drug Benefit Trends **15**(SUPPL. H): 14-20.

The market for blood glucose meters and test strips continues to expand with the increasing prevalence of diabetes. Technologic advances have resulted in the development of advances in blood glucose monitoring that are minimally

invasive. Diabetes care can be further enhanced with disease management programs offered by pharmacists and nurses that emphasize the importance of regular blood glucose monitoring, empower patients with information and support, and lead to improved patient outcomes.

Burrill, P. D. (2004). "No benefit in primary prevention trials [7]." Pharmaceutical Journal **272**(7301).

Bynum, A., D. Hopkins, et al. (2001). "The effect of telepharmacy counseling on metered-dose inhaler technique among adolescents with asthma in rural Arkansas." Telemed J E Health **7**(3): 207-17.

The increased prevalence, morbidity, mortality, and health costs associated with asthma among children suggest the need for accessible asthma education. This study examined the effect of telepharmacy counseling, using interactive compressed video, on metered-dose inhaler (MDI) technique and patient satisfaction among adolescents with asthma in rural Arkansas. The telepharmacy counseling provided accessible education regarding MDI technique for adolescents in this study. Twenty percent of the adolescents who participated had never been shown the appropriate use of an MDI. The study used an experimental design with random assignment of participants to a telepharmacy counseling group (n = 15) or a control group (n = 21). Both groups participated in pre-test, post-test, and 2- to 4-week follow-up assessments for MDI technique and patients satisfaction (follow-up assessment only) via interactive compressed video. Results indicated that from pre-test to follow-up the telepharmacy counseling group showed more improvement in MDI technique than participants in the control group ($p < 0.001$). There was no significant difference between the telepharmacy counseling group and control group in satisfaction with the instructional sessions ($p = 0.132$). Both groups had high levels of satisfaction with the telepharmacy sessions. The study findings demonstrated that patient education provided by pharmacists via interactive compressed video was superior to education provided via written instructions on an inhaler package insert. Interactive compressed video is an effective medium for teaching and improving MDI technique in this rural, adolescent, predominantly African-American population.

Caro, J. J. and K. Lee (2002). "Pharmacoeconomic evaluation of a pharmacist-managed hypertension clinic." Curr Hypertens Rep **4**(6): 418.

Cerulli, J. and M. M. Zeolla (2004). "Impact and feasibility of a community pharmacy bone mineral density screening and education program." J Am Pharm Assoc (Wash DC) **44**(2): 161-7.

OBJECTIVE: To assess the impact of a community pharmacy-based bone mineral density (BMD) screening and education program and determine the feasibility of providing such a service in community pharmacies. DESIGN: Uncontrolled study using convenience sample combined with economic feasibility analysis. SETTING: Two independent and four chain community pharmacies. PARTICIPANTS: Women age 18 years and older. INTERVENTION: Pharmacy patrons were invited to a free BMD screening. Demographic information was

collected, and patients were screened using an ultrasound BMD analyzer. BMD results were reviewed with the participant during an education session and forwarded to primary care providers. Questionnaires were completed at baseline and after 3 months. MAIN OUTCOME MEASURES: Time spent with each participant, project costs, and willingness to pay for screenings were used to estimate feasibility; questionnaire responses assessed impact of the intervention on participants' health care decisions, lifestyle modifications, and communications with their prescribers about osteoporosis. RESULTS: Of the 140 women screened at baseline, 82% indicated the screening was "very useful" for making health care decisions, and 91% believed it encouraged them to talk with their physicians about osteoporosis. At 3 months, 11% of patients reported having improved exercise habits, and 30% had increased their calcium and vitamin D intake. A total of 41% of respondents indicated a willingness to pay dollar 20 or more for the BMD screening service. The average screening time was 23 minutes. Based on fixed costs of the screening device and materials and variable costs associated with personnel time, a community pharmacy could generate a positive net income with a BMD screening program. Cost of the BMD analyzer could be recovered through revenue generated in 24-35 screening days, depending on the fees charged. CONCLUSION: A community pharmacy osteoporosis program had a positive impact on patient health care by influencing lifestyle modifications, increasing use of medications, and encouraging participants to discuss osteoporosis with their physician. Patients are willing to pay for this service; feasibility varies depending on available resources and patient population served.

Chandra, A., N. Malcolm, 2nd, et al. (2003). "Practicing health promotion through pharmacy counseling activities." Health Promot Pract 4(1): 64-71.

Dramatic changes in the U.S. health care system have emphasized the need to promote good health. To achieve this, different types of health care professionals have now started working together. These teams often include participants, such as doctors, pharmacists, and nurses. However, there are many health professionals, such as pharmacists, working in noninstitutionalized settings, such as pharmacies, who are not being fully utilized. One of the ways pharmacists can promote good health is by counseling patients. This article provides some insights regarding the various health promotion activities that are or can be performed by pharmacists. Health promotion educators can play a significant role in educating pharmacists to become effective health promoters. Some hypothetical scenarios and examples, as well as models, are also provided to demonstrate active health promotion through pharmacist counseling activities.

Charrois, T., S. Newman, et al. (2004). "Improving asthma symptom control in rural communities: The design of the Better Respiratory Education and Asthma Treatment in Hinton and Edson study." Controlled Clinical Trials 25(5): 502-514.

The prevalence of asthma in adults in the United States is approximately 7%, and 9% of asthma patients will require hospitalization each year. Many patients do not seek care, as they do not recognize overuse of beta-agonists as a risk factor for poorly controlled asthma. However, pharmacists are able to identify these patients through refill information on reliever medication prescriptions and

potentially initiate community-management opportunities for these patients. The study is a randomized, controlled trial. Patients are randomized to intervention or usual care. Patients are high-risk asthma patients (defined as having an ER visit or hospitalization in the previous year, or using >2 canisters of short-acting beta-agonist in the previous 6 months). They are identified through community pharmacies. The primary objective is to determine the effect of an education and referral intervention program initiated by community pharmacists, working with high-risk asthma patients, family physicians and respiratory therapists, on asthma control, as measured by the Asthma Control Questionnaire (ACQ). Secondary objectives include determining the effect of this program on ER visits/hospitalizations, inhaled corticosteroid use, courses of oral steroids and FEV₁. The intervention includes patient education, assessment and optimization of drug therapy, and physician referral as needed. Patients are referred to a respiratory therapist within 1 week of randomization for measurement of FEV₁ and reinforcement of education. Patients assigned to usual care receive written asthma information, referral to a respiratory therapist and usual pharmacy and physician care. The design of the Better Respiratory Education and Asthma Treatment in Hinton and Edson (BREATHE) study is unique, given the multidisciplinary involvement, rural and community based, pharmacist initiated and targets specifically high risk patients. We believe that this study will show that management of asthma patients, involving the major role-players in their asthma care, will improve their asthma control. (C) 2004 Elsevier Inc. All rights reserved.

Chen, P., M. J. Tanasijevic, et al. (2003). "A computer-based intervention for improving the appropriateness of antiepileptic drug level monitoring." *Am J Clin Pathol* **119**(3): 432-8.

We designed and implemented 2 automated, computerized screens for use at the time of antiepileptic drug (AED) test order entry to improve appropriateness by reminding physicians when a potentially redundant test was ordered and providing common indications for monitoring and pharmacokinetics of the specific AED. All computerized orders for inpatient serum AED levels during two 3-month periods were included in the study. During the 3-month period after implementation of the automated intervention, 13% of all AED tests ordered were canceled following computerized reminders. For orders appearing redundant, the cancellation rate was 27%. For nonredundant orders, 4% were canceled when information on specific AED monitoring and pharmacokinetics was provided. The cancellation rate was sustained after 4 years. There has been a 19.5% decrease in total AED testing volume since implementation of this intervention, despite a 19.3% increase in overall chemistry test volume. Inappropriateness owing to repeated testing before pharmacologic steady state was reached decreased from 54% of all AED orders to 14.6%. A simple, automated, activity-based intervention targeting a specific test-ordering behavior effectively reduced inappropriate laboratory testing. The sustained benefit supports the idea that computerized interventions may durably affect physician behavior. Computerized delivery of such evidence-based boundary guidelines can help narrow the gap between evidence and practice.

Choe, H. M., J. Kim, et al. (2002). "Implementation of the first pharmacist-managed

ambulatory care anticoagulation clinic in South Korea." Am J Health Syst Pharm **59**(9): 872-4.

Ciardulli, L. M. and J. V. Goode (2003). "Using health observances to promote wellness in community pharmacies." J Am Pharm Assoc (Wash) **43**(1): 61-8.

OBJECTIVES: To provide pharmacists in community practice a framework for using national health observances as opportunities to promote patients' health through education and screenings, to discuss obstacles pharmacists may encounter when developing services within their pharmacies, and to outline examples of activities pharmacists can perform for specific health observances.

DATA SOURCES: Articles published between January 1970 and April 2002 were identified through MEDLINE using the search terms wellness, disease prevention, health promotion, Healthy People 2010, treatment of high cholesterol, treatment of high blood pressure, and levels of participation. Additional articles were identified from Web sites and reports from the federal Office of Disease Prevention and Health Promotion (ODPHP), American Heart Association, American Diabetes Association, National Osteoporosis Foundation, National Cancer Institute, American Cancer Society, National Heart, Lung, and Blood Institute, Consumer Product Safety Commission, and Centers for Disease Control and Prevention. DATA SYNTHESIS: Healthy People 2010 is a federal program with the goal of increasing the quality and years of healthy life and eliminating health disparities among populations. ODPHP publishes a list of national health observances each year. Community pharmacists can use these month- and week-long observances as opportunities to work toward achieving Healthy People 2010 goals by advocating, facilitating, and/or providing education and screenings to their patients. This article presents advice for pharmacists who want to develop pharmacy-based health promotion activities at various levels of resources and commitment. Specific suggestions include tips on preparing for and implementing education and screening programs and overcoming potential obstacles. CONCLUSION: As the most accessible health care professionals, pharmacists are in a unique position to help the nation achieve the goals of Healthy People 2010 through their involvement in the promotion of wellness.

Ciardulli, L. M., J. V. Goode, et al. (2003). "Using health observances to promote wellness in community pharmacies." Journal of the American Pharmaceutical Association **43**(1): 61-68.

To provide pharmacists in community practice a framework for using national health observances as opportunities to promote patients' health through education and screenings, to discuss obstacles pharmacists may encounter when developing services within their pharmacies, and to outline examples of activities pharmacists can perform for specific health observances. Data Sources: Articles published between January 1970 and April 2002 were identified through MEDLINE using the search terms wellness, disease prevention, health promotion, Healthy People 2010, treatment of high cholesterol, treatment of high blood pressure, and levels of participation. Additional articles were identified from Web sites and reports from the federal Office of Disease Prevention and Health Promotion (ODPHP), American Heart Association, American Diabetes Association, National Osteoporosis Foundation, National Cancer Institute,

American Cancer Society, National Heart, Lung, and Blood Institute, Consumer Product Safety Commission, and Centers for Disease Control and Prevention. Data Synthesis: Healthy People 2010 is a federal program with the goal of increasing the quality and years of healthy life and eliminating health disparities among populations. ODPHP publishes a list of national health observances each year. Community pharmacists can use these month- and week-long observances as opportunities to work toward achieving Healthy People 2010 goals by advocating, facilitating, and/or providing education and screenings to their patients. This article presents advice for pharmacists who want to develop pharmacy-based health promotion activities at various levels of resources and commitment. Specific suggestions include tips on preparing for and implementing education and screening programs and overcoming potential obstacles. Conclusion: As the most accessible health care professionals, pharmacists are in a unique position to help the nation achieve the goals of Healthy People 2010 through their involvement in the promotion of wellness. (16 refs.)

Cockerill, R., M. Cohen, et al. (2004). "Recruitment strategies. Pharmacists' participation in an evaluation project to dispense emergency contraception." Eval Health Prof 27(1): 70-9.

The objective of this article was to describe the effectiveness of a multifocus recruitment strategy to a pilot project allowing direct provision of emergency contraception (EC) in a community pharmacy through collaborative agreements between pharmacists and physicians. The project recruited pharmacies through direct appeals to pharmacists, pharmacy managers and/or owners, and corporate pharmacy chains. The evaluation project was successful in recruiting sufficient numbers of pharmacies to warrant proceeding with the project. The most successful component of the recruitment strategy was reference to the opportunities that participation offered to expand the pharmacist's role in patient-focused care. The importance of peer influence was also noted in terms of encouraging pharmacy involvement.

Cordina, M., J. C. McElnay, et al. (2001). "Assessment of a community pharmacy-based program for patients with asthma." Pharmacotherapy 21(10): 1196-203.

STUDY OBJECTIVE: To implement and assess a community-based pharmaceutical care program for patients with asthma. DESIGN: Prospective, randomized, controlled trial. SETTING: Community pharmacies (11 control, 11 intervention) in Malta. PATIENTS: Community-dwelling patients with asthma. INTERVENTIONS: A comprehensive asthma education and monitoring program was implemented. Intervention patients received verbal counseling, an educational video, an information leaflet, and subsequent monitoring with reinforcement; control patients received routine dispensing services. MEASUREMENTS AND MAIN RESULTS: Parameters assessed at baseline and at 4, 8, and 12 months were health-related quality of life, peak expiratory flow (PEF), inhaler technique, compliance with therapy, hospitalization rates, days lost from work, asthma symptoms, and patient satisfaction. Health-related quality of life of the intervention patients improved at 12 months ($p=0.044$). In the same time period, PEF significantly decreased in control patients compared with intervention patients ($p=0.009$) whereas inhaler technique improved in the

intervention group ($p=0.021$). There were significantly fewer self-reported hospitalizations in intervention patients. **CONCLUSIONS:** A community-based pharmaceutical care program was appreciated by the participants and had a positive impact on the vitality of patients with asthma, inhaler technique, and PEE.

Cording, M. A., E. B. Engelbrecht-Zadvorny, et al. (2002). "Development of a pharmacist-managed lipid clinic." *Ann Pharmacother* **36**(5): 892-904.

OBJECTIVE: To describe the development of a pharmacist-managed lipid clinic within a primary care medical clinic and review its results after approximately 12 months of operation. **METHODS:** A pharmacist-managed lipid clinic was developed at Naval Medical Center San Diego. Administrative background, treatment algorithm development, operational issues, clinical activities, and barriers to the clinic are discussed. For intermediate outcomes, data from patients who had at least 1 intervention by the pharmacist and 1 follow-up lipid panel were analyzed for medication use, changes in lipid parameters, and percent reaching the low-density-lipoprotein (LDL) target goal. Modified National Cholesterol Education Program-Adult Treatment Panel II guidelines were used to determine the LDL goal. **RESULTS:** Following approximately 12 months of operation, the clinic received 204 referrals and consisted of 146 active patients. A brief study was conducted to assess clinical outcomes. Of 115 patients who were seen in the clinic and met inclusion criteria, 57% were receiving treatment with a hydroxymethylglutaryl coenzyme A reductase inhibitor (statin) and 17% were receiving fibrates; 17% of the patients were not receiving lipid-lowering medications. Relative to baseline, LDL cholesterol concentrations decreased 20%, high-density-lipoprotein cholesterol increased 11%, and triglycerides decreased 19%. Overall, LDL goals were reached in 77% of the patients. LDL goals were attained by 63%, 79%, and 93% of patients with targets of <100, <130, and <160 mg/dL, respectively. Results are compared with other studies regarding lipid goal attainment. **CONCLUSIONS:** A pharmacist-managed lipid clinic can be developed and integrated into a primary care medical clinic. Pharmacists can effectively manage lipid-lowering therapy, helping to achieve LDL goals.

Cote, I., J. P. Gregoire, et al. (2003). "A pharmacy-based health promotion programme in hypertension: cost-benefit analysis." *Pharmacoeconomics* **21**(6): 415-28.

OBJECTIVE: To weigh the costs and benefits of a pharmacy-based health promotion programme implemented in four pharmacies of the Quebec City area, Canada. This programme was developed to improve blood pressure control through activities aimed at improving the quality of prescribing and the adherence to treatment. **DESIGN:** Nine pharmacies in Quebec City were included, of which four pharmacies were assigned to the implementation of the health promotion programme. Each time a study participant came to one of these pharmacies to refill his/her antihypertensive medication, the pharmacist would measure and record the participant's blood pressure and assess adherence to drug treatment. The other five pharmacies delivered usual care. The duration of the intervention programme was 9 months. Costs included direct, indirect, and fixed costs, and the costs of pharmacist intervention. Benefits were measured using cost savings

induced by pharmacist intervention. Willingness to pay was also considered. A bootstrap method was used to test the between-group difference.

PERSPECTIVE: The study was performed from a societal perspective. STUDY

PARTICIPANTS: 100 individuals aged between 34 and 80 years residing in the Quebec City area and taking antihypertensive medication. Main outcome

measures and results: Participants exposed to the programme had a significant decrease in mean direct costs and a significant increase in mean indirect costs compared with non-exposed participants. Pharmacist interventions involved a mean cost of 30.68 Canadian dollars (\$ Can) per participant exposed to the programme. On average, exposed participants were willing to pay \$ Can 0.54 per month after the intervention period. Benefits were about ten times higher than costs (1998 values). CONCLUSIONS: The implementation of this intervention programme seems promising in the quest to improve blood pressure control in terms of both costs and benefits.

Couchenour, R. L., D. S. Carson, et al. (2002). "Patients' views of pharmacists as providers of smoking cessation services." J Am Pharm Assoc (Wash) **42**(3): 510-2.

Cranor, C. W., B. A. Bunting, et al. (2003). "The Asheville Project: long-term clinical and economic outcomes of a community pharmacy diabetes care program." J Am Pharm Assoc (Wash) **43**(2): 173-84.

OBJECTIVE: To assess the persistence of outcomes for up to 5 years following the initiation of community-based pharmaceutical care services (PCS) for patients with diabetes. DESIGN: Quasi-experimental, longitudinal pre-post cohort study. SETTING: Twelve community pharmacies in Asheville, N.C. PATIENTS AND OTHER PARTICIPANTS: Patients with diabetes covered by self-insured employers' health plans. Community pharmacists trained in a diabetes certificate program and reimbursed for PCS. INTERVENTIONS: Education by certified diabetes educators, long-term community pharmacist follow-up using scheduled consultations, clinical assessment, goal setting, monitoring, and collaborative drug therapy management with physicians. MAIN OUTCOME MEASURES: Changes in glycosylated hemoglobin (A1c) and serum lipid concentrations and changes in diabetes-related and total medical utilization and costs over time. RESULTS: Mean A1c decreased at all follow-ups, with more than 50% of patients demonstrating improvements at each time. The number of patients with optimal A1c values (< 7%) also increased at each follow-up. More than 50% showed improvements in lipid levels at every measurement. Multivariate logistic regressions suggested that patients with higher baseline A1c values or higher baseline costs were most likely to improve or have lower costs, respectively. Costs shifted from inpatient and outpatient physician services to prescriptions, which increased significantly at every follow-up. Total mean direct medical costs decreased by \$1,200 to \$1,872 per patient per year compared with baseline. Days of sick time decreased every year (1997-2001) for one employer group, with estimated increases in productivity estimated at \$18,000 annually. CONCLUSION: Patients with diabetes who received ongoing PCS maintained improvement in A1c over time, and employers experienced a decline in mean total direct medical costs.

Cranor, C. W. and D. B. Christensen (2003). "The Asheville Project: short-term

outcomes of a community pharmacy diabetes care program." J Am Pharm Assoc (Wash) **43**(2): 149-59.

OBJECTIVE: To assess short-term clinical, economic, and humanistic outcomes of pharmaceutical care services (PCS) for patients with diabetes in community pharmacies. **DESIGN:** Intention-to-treat, pre-post cohort-with-comparison group study. **SETTING:** Twelve community pharmacies in Asheville, N.C. **PATIENTS AND OTHER PARTICIPANTS:** Eighty-five patients with diabetes who were employees, dependents, or retirees from two self-insured employers; community pharmacists who completed a diabetes certificate program and received reimbursement for PCS. **INTERVENTIONS:** Patients scheduled consultations with pharmacists over 7 to 9 months. Pharmacists provided education, self-monitored blood glucose (SMBG) meter training, clinical assessment, patient monitoring, follow-up, and referral. Group 1 patients began receiving PCS in March 1997, and group 2 patients began in March 1999. **MAIN OUTCOME MEASURES:** Change from baseline in the two employer groups in glycosylated hemoglobin (A1c) values, serum lipid concentrations, health-related quality of life (HRQOL), satisfaction with pharmacy services, and health care utilization and costs. **RESULTS:** Patients used SMBG meters at home, stored all readings, and brought their meters with them to 87% of the 317 PCS visits (3.7 visits per patient). Patients' A1c concentrations were significantly reduced, and their satisfaction with pharmacy services improved significantly. Patients experienced no change in HRQOL. From the payers' perspective, there was a significant dollars 52 per patient per month increase in diabetes costs for both groups, with PCS fees and diabetes prescriptions accounting for most of the increase. In contrast, both groups experienced a nonsignificant but economically important 29% decrease in nondiabetes costs and a 16% decrease in all-diagnosis costs. **CONCLUSION:** A clear temporal relationship was found between PCS and improved A1c, improved patient satisfaction with pharmacy services, and decreased all-diagnosis costs. Findings from this study demonstrate that pharmacists provided effective cognitive services and refute the idea that pharmacists must be certified diabetes educators to help patients with diabetes improve clinical outcomes.

De Miguel, E. and C. Suarez de Venegas (2002). "Implementation of an overweight and obese people follow-up program as a previous step to a drug-therapy follow-up. [Spanish, English]." Pharmaceutical Care Espana **4**(5): 264-274.

Overweight and obesity are becoming bigger and bigger health problems in today's society and also being an esthetic problem people's awareness has been heightened. The creation of a follow-up program for this health problem is the beginning of a new way to implement a Drug Therapy Follow-up service in a pharmacy. **Objectives:** 1-To carry out nutritional education in order to lose weight in cases of overweight and obesity, and the maintaining of those with a normal weight. 2-To create optimum conditions in the pharmacy in order to vanquish population's resistance when speaking about health problems and related medicines, so as to carry out drug-therapy follow-up. **Methods:** Retrospective observational study. In a population of 2.279 inhabitants, a sample of 168 people were studied, nutritional advice was given, and they were interviewed weekly by the pharmacists who registered the weight and Body Mass Index (BMI)

variations. Likewise confidentiality conditions were, created so as to subsequently put into practice a drug therapy follow-up service. Results: 88.10% of the people who began the treatment, remained in follow-up for a time that made the BMI fall significantly. 12.83% lost between 8 and 12 kg and 8.11 % more than 12 kg. Of the people who presented overweight or obesity 11% managed to reach Resultados: El 88,10% de las personas que inician, permanecen en seguimiento durante un tiempo que hace que el IMC baje de forma significativa. Un 12,83% pierde entre 8 y 12 Kg y un 8,11 % ma[spacing acute]s de 12 Kg. De las personas que presentaban sobrepeso u obesidad el 11% lle[spacing acute]go a obtener valores de normopeso. En diciembre de 2000 se comienza a hacer Seguimiento Farmacoterape[spacing acute]utico teniendo a finales de abril de 2001 a 24 personas en seguimiento de tratamiento farmacolo[spacing acute]gico. Conclusiones: Implantar un seguimiento de sobrepeso y obesidad puede ser un paso previo a tener en cuenta para llegar a realizar Seguimiento Farmacoterape[spacing acute]utico. normal weight values. In December 2000 drug therapy follow-up was begun and at the end of April 2001 there were 24 people in follow-up. Conclusions: To implement follow-up on overweight and obesity may be a previous step to take into account to be able to carry out drug therapy follow-up.

del Arco, J., J. Ruiz Golvano, et al. (2002). "Pharmacy involvement in the prevention and management of drug addictions." Pharmaceutical Care Espana 4(3): 138-142.

Diamond, S. A. and K. R. Chapman (2001). "The impact of a nationally coordinated pharmacy-based asthma education intervention." Can Respir J 8(4): 261-5.

OBJECTIVE: To assess the impact of a nationally coordinated pharmacy-based educational intervention on self-management behaviour and markers of asthma control in self-referred patients with asthma. DESIGN: An asthma clinic day was set up by a national chain of community pharmacies whereby pharmacists used a structured questionnaire to assess asthma control and self-care among self-referred patients with doctor-diagnosed asthma. In a one-on-one counselling session, each patient's educational needs were identified and the appropriate education offered. A telephone follow-up 30 days later assessed the impact of teaching. SETTING: Community pharmacies across Canada. OUTCOME MEASURES: The follow-up questionnaire quantified the number of wheezing episodes or other symptoms per week, the number of night-time awakenings per week, and the frequency of use of reliever and preventive medications. RESULTS: Of 4080 patients assessed, 22.2% used an inadequate inhaler technique, 16.4% used a short acting beta2-agonist excessively and 21.0% were not using an inhaled corticosteroid daily despite a frequency of symptoms that would suggest that it was needed. Common educational interventions included a review of inhaler technique (41.9%), a recommendation for regular inhaled corticosteroids (31.5%) and a referral to the primary care physician (21.0%). Thirty days after the educational intervention, patients reported significant decreases in the frequency of daytime asthma symptoms, the frequency of nocturnal symptoms and the frequency with which short acting beta2-agonists were used, while reporting significant increases in their use of preventive medication. CONCLUSIONS: A brief assessment and an educational intervention

in the community pharmacy can produce significant short term improvements in patient-reported symptom control and appropriate self-management behaviour.

Disco, M. E., C. J. Possidente, et al. (2002). "Anticoagulation clinic in community health center setting." Ashp Midyear Clinical Meeting **37**(DEC).

Federally qualified health centers provide care to medically underserved patients throughout the United States. A federal grant in conjunction with the UNC School of Pharmacy, was awarded to place clinical pharmacists in this setting. The objective of this report is to describe the role of a pharmacist in managing anticoagulation in one clinic with a recently implemented point of care (POC) testing procedure. A protocol for warfarin dose adjustment, a continuous quality improvement program and a computer database for monitoring patient outcomes were implemented after the clinical pharmacist's arrival. During the 6-month study period, 49 patients were evaluated. International normalized ratio (INR) values were therapeutic, defined as within ± 0.1 INR units of the target value, in 196/305 (64%). Major bleeding, defined as an emergency room visit or hospitalization occurred in one patient (2%). Two thromboembolic events, a deep vein thrombosis and TIA, were reported. Since program implementation, 90% of INR's were completed within six weeks of each other. These results are consistent with published rates for anticoagulation clinics. Physician providers are pleased with a centralized anticoagulation monitoring program, which offers more time for them to manage other clinical problems.

Ditusa, L., A. B. Luzier, et al. (2001). "A pharmacy-based approach to cholesterol management." Am J Manag Care **7**(10): 973-9.

OBJECTIVE: To determine the clinical and economic impact of a pharmacy-based cholesterol management program in patients with cardiovascular disease. **STUDY DESIGN:** Demonstration project. **Patients and METHODS:** From January 1, 1999, through June 30, 1999, 300 patients with a documented history of cardiovascular disease were enrolled in a pharmacy-based cholesterol program. A similar group of 150 randomly selected patients receiving usual care during the same period served as the comparator group. The following were collected for both groups: patient demographics, comorbidities, fasting lipid profiles, cholesterol medication, cost of medication, and cardiovascular events. The McNemar symmetry chi2 test was used to compare appropriate laboratory monitoring, receipt of cholesterol medication, and achievement of target low-density lipoprotein cholesterol levels at baseline and 1 year for both groups. Kruskal-Wallis analysis of variance was used to compare the cost of therapy for both groups at baseline and follow-up. **RESULTS:** Mean \pm SD age of program and usual care patients was 67 \pm 10 and 69 \pm 11 years, respectively. At 1 year, >95% of program patients were receiving appropriate laboratory monitoring. In 1 year, the percentage of patients reaching target low-density lipoprotein cholesterol levels increased from 45% to 72% ($P < .01$) and from 33% to 43% ($P = .26$) in program and usual care patients, respectively. Despite increased medication use among program patients, their cost per patient per month was lower at 1-year follow-up vs baseline. **CONCLUSION:** Regular patient interaction and close patient monitoring allowed the pharmacy-based lipid management program to improve cholesterol management in patients with cardiovascular

disease.

Donaldson, A. R. and M. R. Andrus (2004). "Pharmacist-run lipid management program in rural Alabama." Am J Health Syst Pharm **61**(5): 493-7.

Dundee, F. D., D. M. Dundee, et al. (2002). "Pediatric counseling and medication management services: opportunities for community pharmacists." J Am Pharm Assoc (Wash) **42**(4): 556-66; quiz 566-7.

Dupuits, F. (2002). "The effects of the internet on pharmaceutical consumers and providers." Disease Management & Health Outcomes **10**(11): 679-691.

The Internet has changed healthcare practice and has just begun to influence pharmaceutical consumers and providers. The Internet firstly affects the pharmaceutical consumer through the five main functions it offers to all consumers of care. These functions are: (i) to provide and distribute information; (ii) to support informed decision making; (iii) to promote health; (iv) to provide a means for information exchange and support (the community concept) and; (v) to increase self care and manage the demand for health services, thus, lowering direct medical costs. Secondly, the Internet influences the pharmaceutical consumer by enhancing the move to consumer empowerment. Thirdly, it offers increased self-care capabilities to consumers through pharmaceutical information gathering and pharmaceutical products and services purchasing using Internet pharmacies. Finally, the Internet affects the pharmaceutical consumer by enhancing efficiency in the medical management of patients. It does this by providing the means for telemedicine and telepharmacy, by changing the healthcare professional-patient relationship, and by providing a tool for registering adverse drug events. Disease management benefits include: (i) access to care for remotely located consumers; (ii) the possibility of peer consultation and of access to diagnostic and therapeutic Internet information for healthcare providers; and (iii) continuity of care via virtual community networks, integrated health systems, interconnected, real-time, virtual healthcare teams, and virtual unified electronic health records. The Internet's effect of increasing knowledge of illicit and unregulated drugs, which may change drug use behavior and drug culture, though, makes the medical management of patients less efficient. The effects of the Internet on the pharmaceutical provider firstly relate to technological and managerial changes. The Internet, secondly, induces changes in the provision of pharmaceutical care by offering the means for telemedicine, telepharmacy, and e-commerce, for advertising, promotion, and communication with consumers, and for supporting drug safety and pharmacovigilance. The Internet's positive influence on pharmaceutical consumers and providers, however, mainly will depend on whether proper solutions can be found for the privacy/security and confidentiality problems existing in pharmaceutical information gathering and pharmaceutical products and services purchasing. Special focus should be placed on ensuring the privacy of consumer information and on the secure transmission of financial information. The best defenses will be adequate, national, international, and global laws and regulations which ensure privacy/security and confidentiality on a global level.

Earle, K. A., P. Taylor, et al. (2001). "A physician-pharmacist model for the surveillance

of blood pressure in the community: A feasibility study." Journal of Human Hypertension **15**(8): 529-533.

Hypertension is poorly managed. Hospital-based pharmacists working with physicians have been shown to improve the rate of achievement of 'target' blood pressure in selected patients. It is unknown if such schemes can operate in the community and to what extent they would attract volunteers with poorly managed blood pressure. We assessed the feasibility of pharmacists to provide community-based, open-access, blood pressure monitoring. In addition, we describe the blood pressure profile of the group in comparison to that of the 1994 Health Survey of England (HSE). Pharmacists from six pharmacies were trained to deliver the service. Adults living within the postal districts of the pharmacies were invited, through an advertising campaign, to volunteer to have their blood pressure measured. Blood pressure data and information on treatment for hypertension and/or diabetes were collected on 263 registrants. Patients were advised to have their blood pressure managed by the general practitioner immediately (category 1), re-measured within 2-3 months (category 2) or in 12 months time (category 3). The mean (s.d.) blood pressure of patients in categories 1 (n = 16), 2 (n = 177) and 3 (n = 130) was 186(16)/97(29), 151(13)/94(9) and 139(22)/86(13) mm Hg respectively; $P < 0.001$. Ninety-one patients (35%) were in receipt of antihypertensive therapy. Forty-five percent of the treated group had controlled blood pressure ($<160/95$ mm Hg) compared with 30% in the HSE dataset. A large proportion of known hypertensive patients with poor blood pressure control who had visited their general practitioner within the previous 6 months were detected by the pharmacist-led service. Pharmacists operating an open-access blood pressure monitoring service may be of value in improving the management of hypertension.

Elliott, M. E., P. D. Meek, et al. (2002). "Pharmacy-based bone mass measurement to assess osteoporosis risk." Ann Pharmacother **36**(4): 571-7.

OBJECTIVE: To evaluate elderly women's knowledge of their skeletal status, assess adequacy of calcium intake, determine the prevalence of low bone density, and determine whether peripheral bone density testing led to medical interventions in a group of rural, elderly Wisconsin women recruited in community pharmacies. DESIGN: Recruiting notices were posted in each pharmacy, and eligible women were enrolled in the order in which they volunteered. Each completed a fracture-risk questionnaire. Calcaneal bone density was measured within the following 6 weeks, using peripheral dual-energy X-ray absorptiometry. Mail surveys were used to assess interventions subsequent to the women's study participation. SETTING: The study was conducted at 5 community pharmacies in rural Wisconsin. RESULTS: Of 133 women, 20% had calcaneal osteoporosis, defined as a T score ≤ -2.5 (calcaneal bone density <2.5 SDs below the young reference database). Thirty percent of women met National Osteoporosis Foundation (NOF) treatment criteria based on heel bone density and NOF-designated risk factors. Of those meeting treatment criteria, 75% were unaware of their low bone mass. Half of the women received <1200 mg/d of calcium, the recommended dose for osteoporosis prevention. Those who were taking a calcium supplement were much more likely to receive the recommended amount. Women who had discussed bone density test results with their physicians were

more likely to receive central dual energy X-ray absorptiometry (DXA) measurements and/or start antiresorptive therapy than women who did not.

CONCLUSIONS: Rural, elderly Wisconsin women are at substantial risk for osteoporosis, based on calcaneal bone density, but most are unaware of their risk. Compounding this risk is low calcium intake. Community screening of rural, elderly women by peripheral bone density measurement can lead to medical interventions in such individuals.

Elliott, M. E., P. D. Meek, et al. (2002). "Osteoporosis screening by community pharmacists: use of National Osteoporosis Foundation resources." J Am Pharm Assoc (Wash) **42**(1): 101-10; quiz 110-1.

OBJECTIVES: To assess the feasibility of establishing an osteoporosis screening program in rural community pharmacies based on information and resources provided by the National Osteoporosis Foundation (NOF), to survey primary care providers regarding the usefulness of this screening program, and to recommend strategies for pharmacists interested in working with patients at risk for osteoporosis. DESIGN AND PARTICIPANTS: Pharmacists and/or nurses enrolled women 65 years of age and older into the study, measured calcaneal bone density, administered a questionnaire to ascertain subjects' osteoporosis risk factors, and provided NOF literature to subjects. With their agreement, women's bone mass data and risk factor assessments were provided to primary care providers along with NOF's Physician's Guide to Prevention and Treatment of Osteoporosis. These providers were surveyed as to whether they found this information useful. SETTING: Five independent community pharmacies in rural Wisconsin. RESULTS: We enrolled and tested 133 women. Of these, 122 (92%) agreed to have information mailed to their primary health care providers. These 57 providers were surveyed and 24 (42%) responded; of these 24, 20 (83%) found the information they received useful. CONCLUSION: A community pharmacy-based osteoporosis screening program using NOF materials was well accepted by physicians. NOF resources and recommendations can provide a strong foundation for such programs.

Ernst, M. E., G. R. Bergus, et al. (2001). "Patients' acceptance of traditional and nontraditional immunization providers." J Am Pharm Assoc (Wash) **41**(1): 53-9.

OBJECTIVE: To examine patients' acceptance and reported use of traditional and nontraditional immunization providers and settings. DESIGN: Survey.

SETTING: Stratified sample of private family physician clinics, family medicine residency training programs, community pharmacies that provide immunizations under standing order protocols, and nonimmunizing community pharmacies, all located in Iowa. PATIENTS OR OTHER PARTICIPANTS: Individuals presenting for medical care or pharmacy services. INTERVENTIONS: Not applicable. MAIN OUTCOME MEASURES: Sources of past immunizations, 'access to immunizations, importance of immunization records, and future use of different health care providers and settings for immunizations. Univariate and multivariate analyses were performed to examine the relationships between patient demographics and recruitment site on the question responses. RESULTS: 420 surveys were returned (67% response rate). Respondents frequently received immunizations at sites other than physician offices. Younger patients and those

living in smaller towns were more likely to report receiving an immunization from a nonphysician. Patients recruited in immunizing pharmacies more often reported previous immunization by a pharmacist ($P < .001$), most often for influenza. Respondents often reported that it was more convenient to receive an immunization outside a physician office. Greater support was noted for receiving adult immunizations from nonphysicians and in nontraditional settings, whereas traditional settings and providers (physician offices, community health departments) were preferred for childhood immunizations. CONCLUSION: Iowans report accessing different health care providers and settings for their routine immunizations. In general, they are more likely to support using traditional immunization providers and settings for childhood immunizations but are less exclusive about where they receive adult immunizations. Pharmacists should consider focusing initial efforts on administering adult immunizations, due to greater patient acceptance of nontraditional immunizers for adult immunizations.

Ernst, M. E., W. R. Doucette, et al. (2001). "Use of point-of-service health status assessments by community pharmacists to identify and resolve drug-related problems in patients with musculoskeletal disorders." Pharmacotherapy **21**(8): 988-97.

STUDY OBJECTIVE: To determine whether community pharmacists can use point-of-service health status assessments to identify and resolve drug-related problems (DRPs) in ambulatory patients with selected musculoskeletal (MSK) disorders. DESIGN: Twelve-month, prospective, multicenter demonstration project. SETTING: Twelve independent community pharmacies in eastern Iowa. PATIENTS: Ambulatory patients with self-reported diagnosis of osteoarthritis, rheumatoid arthritis, or low back pain. MEASUREMENTS: During quarterly pharmacy visits for 1 year, patients used touch-screen computers to report their health status. Patients answered questions on the Short Form-36 (SF-36) general health survey, as well as questions assessing limitations associated with their MSK condition. Pharmacists used this data in interviewing patients to assess for DRPs. MAIN RESULTS: The study enrolled 461 patients, of whom 388 returned for the 12-month visit. During this 1-year period, community pharmacists identified 926 cumulative DRPs. Patients with no DRPs had significantly higher physical component summary scores on the SF-36 ($p < 0.05$) than patients with more than one DRP at baseline (36.2 vs 31.6), 6 months (39.2 vs 33.3), and 12 months (40.1 vs 35.4). At 12 months, actions performed by pharmacists led to resolution or improvement of 70.7% of DRPs. CONCLUSION: Drug-related problems are numerous in community-dwelling patients with MSK disorders and correspond to decreased physical health status. Community pharmacists can use patient-reported measures of health status to identify DRPs and initiate processes to resolve them.

Evans, E. and R. Patry (2004). "Management of gestational diabetes mellitus and pharmacists' role in patient education." Am J Health Syst Pharm **61**(14): 1460-5.

PURPOSE: The pathophysiology, diagnosis, complications, and management of gestational diabetes mellitus (GDM) are discussed, along with considerations in setting up a pharmacist-run GDM education service. SUMMARY: GDM occurs when there is insufficient insulin secretion to counteract pregnancy-related decreases in insulin sensitivity. GDM can be diagnosed by using the same

criteria used to diagnose types 1 and 2 diabetes mellitus (DM): a fasting blood glucose concentration of > 126 mg/dL on two separate occasions or a random blood glucose concentration of > 200 mg/dL on two separate occasions. Complications of GDM include maternal type 2 DM, maternal hypertension, macrosomia, shoulder dystocia, and neonatal hypoglycemia. GDM is managed with medical nutritional therapy (MNT), exercise, and therapy with human or synthetic insulin. The American Diabetes Association recommends starting insulin therapy when MNT fails to maintain plasma glucose concentrations at $< \text{or} = 105$ mg/dL during fasting, $< \text{or} = 155$ mg/dL one hour after eating, or $< \text{or} = 130$ mg/dL two hours after eating. A pharmacist interested in establishing a GDM education service must assess the feasibility of providing such education in his or her practice and whether such a program is needed. Other considerations are developing a curriculum, marketing the service, maintaining records, calculating costs, and obtaining reimbursement. CONCLUSION: GDM can have serious effects if not treated properly. A major part of managing GDM involves educating the patient about diet, exercise, blood glucose self-monitoring, and insulin self-administration. A successful pharmacist-run GDM education service must have a market and prices sufficient to generate profit.

Feifer, R. A., R. R. Verbrugge, et al. (2004). "Improvements in asthma pharmacotherapy and self-management: An example of a population-based disease management program." Disease Management & Health Outcomes **12**(2): 93-102.

Background and objective: In day-to-day practice, asthma treatment and self-management often fall short of the objectives defined by clinical practice guidelines. The objective of this study was to determine whether a population-based asthma disease management program, using broad-based educational interventions, can have a favorable impact on physician and patient adherence to guidelines-based care. Methods: A longitudinal, before-and-after design was used to evaluate program impacts on pharmacotherapy and health status. Patients with asthma ($n = 35\,450$) were enrolled in the program from September 2000 through to June 2001. Patients were identified for the study based on a 12-month retrospective analysis of pharmacy claims. Patients were members of prescription benefit plans managed by Medco Health and were aged 5 years and older. Patients in the intervention group received asthma education materials during the 12-month period following enrollment. The materials emphasized guidelines-based principles of asthma pharmacotherapy, self-management, trigger avoidance and patient-physician partnership. Physicians received guidelines-based flow sheets to facilitate therapy tracking, and pharmacotherapy review. Asthma drug utilization was measured during the 12-month period prior to enrollment and the 12-month period following enrollment. Utilization data on controller and reliever medications were derived from a pharmacy claims database. Drug utilization changes for the intervention group were compared with those for matched controls. A health survey was conducted on a random sample of program participants at enrollment and at 12-month follow-up. The health survey included questions on asthma-related quality of life (QOL), medical utilization, productivity, and self-management skills. Main outcome measures and results: The percentage of patients who started controller therapy during the study period was significantly higher for the intervention group than the control

group (20.7% versus 18.1%, $p < 0.001$). The controller prescription fill rate increased significantly in the intervention group compared with controls ($p < 0.0001$); the increase was primarily driven by increased refill rates for patients already using controllers. Reliever prescription fill rates decreased for both the intervention group and controls. Program participants reported significant improvements in asthma-related QOL ($p < 0.05$) and self-management skills. Self-reported medical utilization decreased for office visits ($p < 0.05$) and emergency room visits ($p < 0.01$). Conclusions: A population-based asthma disease management program can improve controller prescribing rates (new therapy starts), controller adherence rates (refill persistency), and self-management skills. These changes in physician and patient behavior help close the gaps between guidelines and practice in asthma therapy.

Ferguson, J. and R. Dickinson (2004). "Six million visits to Britain's pharmacies - Mystery solved? [1]." Pharmaceutical Journal **272**(7296).

Freemantle, N., I. Nazareth, et al. (2002). "A randomised controlled trial of the effect of educational outreach by community pharmacists on prescribing in UK general practice." British Journal of General Practice **52**(477): 290-295.

Background: Educational outreach visits are commonly used to promote changes in prescribing in family practice. However, the effectiveness of outreach visits has not been evaluated across a range of settings. Aim: To estimate the effectiveness of educational outreach visits on United Kingdom (UK) general practice prescribing and to examine the extent to which practice characteristics influenced outcome. Design of study: Randomised controlled trial. Setting: General practices in 12 health authorities in England. Method: Educational outreach visits were made to practices that received two of four guidelines. Each practice provided data on treatment of patients for all four guidelines for both pre and post-intervention periods. The primary outcome is average effect across all four guidelines. Secondary analyses examined the predictive effect of practice and guideline characteristics. Results: Seventy per cent of practices approached agreed to take part in the intervention. Overall, educational outreach was associated with a significant improvement in prescribing practice (odds ratio [OR] = 1.24 [95% CI = 1.07 to 1.42]), a 5.2% (95% CI = 1.7% to 8.7%) increase in the number of patients treated within the guideline recommendations. Smaller practices (two or fewer full-time equivalent practitioners) responded much more favourably to educational outreach than larger practices. Smaller practices improved their performance in line with the guidelines by 13.5% (95% CI = 6% to 20.9%) attributable to outreach, while larger practices improved by only 1.4% (95% CI = -2.4% to 5.3%, P-value for interaction < 0.001). Conclusion: In large practices, educational outreach alone is unlikely to achieve worthwhile change. There is good evidence to support the use of educational outreach visits in small practices.

Giles, J. T., D. T. Kennedy, et al. (2001). "Results of a community pharmacy-based breast cancer risk-assessment and education program." Pharmacotherapy **21**(2): 243-53.

We tested the hypothesis that an education program addressing breast cancer

screening schedules and modalities coupled with a breast cancer risk assessment provided by community pharmacists can increase women's confidence in performing screening practices endorsed by the American Cancer Society (ACS). This randomized, paired, pre-post study was conducted in six community pharmacies and two health-screening fairs; subjects were 140 women over 18 years of age. The pharmacist-administered program used the Breast Cancer Risk-Assessment Tool (Gail model) software provided by the National Cancer Institute of the National Institutes of Health. In addition, pharmacists provided education and training on breast self-examination (BSE), clinical breast examination (CBE), and mammography. Adherence to ACS guidelines for monthly BSE increased from 31% to 56% ($p < 0.001$) for all women 6 months after the program. Performance of monthly BSE by women considered at high risk for developing breast cancer increased from 20% to 60% ($p < 0.005$). The mean number of BSEs performed over 6 months increased from 2.69 to 4.09 ($p < 0.001$). Women's confidence performing correct BSE improved from 6.41 to 7.04 ($p < 0.001$) on a scale of 0-10. Adherence to ACS guidelines for CBE and mammography did not reveal statistically significant improvements except for better adherence to CBE in women aged 40-49 years (81% to 97%, $p < 0.025$). The strength of the pharmacists' intervention may not appear as manipulation of high-risk patients' behavior but as improvement of self-directed behaviors, such as BSE, across all age groups.

Goode, J. V., K. Swiger, et al. (2004). "Regional osteoporosis screening, referral, and monitoring program in community pharmacies: findings from Project ImPACT: Osteoporosis." J Am Pharm Assoc (Wash DC) **44**(2): 152-60.

OBJECTIVE: (1) To identify patients at risk for osteoporosis through community pharmacy-based bone mineral density (BMD) screening, to refer at-risk patients to primary care and/or specialty practice physicians, and to follow-up with at-risk patients; (2) to treat and manage osteopenic and osteoporotic patients referred to the pharmacy for medication therapy management services; and (3) to test a payment methodology for pharmacists who deliver community health management services to a population at risk for or diagnosed with osteoporosis. DESIGN: Single-cohort observational study. SETTING: Ukrop's Super Markets, Inc. Grocery and Pharmacy, a 29-store chain with 22 pharmacy locations in Richmond, Virginia. PARTICIPANTS: Consumers with one or more known risk factors for osteoporosis in Ukrop's customer service area. INTERVENTION: During the initial phase (health promotion and disease prevention) of the project, pharmacy-based osteoporosis screening with referral and follow-up was provided to consumers who responded to Ukrop's screening promotions. The second phase-provision of collaborative community health management services focused on osteoporosis monitoring and management--is ongoing and includes patients who are at risk for or diagnosed with osteoporosis and are covered by a regional payer. MAIN OUTCOME MEASURES: Results of screenings; responses of patients and physicians to notifications; and long-term results during collaborative care. RESULTS: The pharmacists screened 532 patients and were able to contact 305 of these patients for follow-up interviews 3 to 6 months later. The stratification for risk of fracture was 37%, high risk; 33%, moderate risk; and 30%, low risk. A total of 78% of patients indicated that they had no prior

knowledge of their risk for future fracture. In the moderate- and high-risk categories, 37% of patients scheduled and completed a physician visit, 19% had a diagnostic scan, and 24% of those patients were initiated on osteoporosis therapy subsequent to the screening. Participating pharmacies received payment for both the osteoporosis screening and the collaborative health management services. **CONCLUSION:** Pharmacists can play a useful role in the identification, education, and referral of patients at risk for osteoporosis through pharmacy-based BMD screening. Patients are willing to pay for pharmacy-based osteoporosis screening services. Third-party payers are willing to compensate pharmacists for collaborative community health management services.

Grabenstein, J. D. (2001). "Nasal influenza vaccine: a bridge to full-service vaccine delivery by pharmacists." J Am Pharm Assoc (Wash) **41**(3): 473.

Grabenstein, J. D., H. A. Guess, et al. (2001). "People vaccinated by pharmacists: descriptive epidemiology." J Am Pharm Assoc (Wash) **41**(1): 46-52.

OBJECTIVE: To describe the demographic, clinical, and attitudinal characteristics of people vaccinated by pharmacists, using a multistate sample of pharmacists and a more extensive set of parameters than previous studies.

DESIGN: Cross-sectional survey. **PATIENTS AND OTHER PARTICIPANTS:** 1,730 adults vaccinated at 21 community pharmacies in 17 cities in 10 states.

MAIN OUTCOME MEASURES: Vaccinees' age, sex, and selected demographic characteristics; current medications and prescription use patterns; distance traveled to pharmacy; and opinions about vaccine providers. **RESULTS:** 60% of respondents were women; average age was 54 +/- 15 years. One-quarter were age 65 years or older. About 9% were younger than 65 and took medication for chronic heart or lung disease or diabetes. Almost half took prescribed medications chronically, and 84% came to the pharmacy intending to be vaccinated. All of the respondents believed they were treated respectfully. Many respondents considered the pharmacy advantageous, compared with other vaccine providers, based on access, proximity, trust, convenience, and/or cost.

CONCLUSION: Respondents vaccinated by a community pharmacist were satisfied with the experience and would recommend it to others.

Gummerson, I. (2001). "Those who adapt will survive [2]." Pharmaceutical Journal **267** (7174).

Gummerson, I. (2004). "Learning together in diabetes care." Pharmaceutical Journal **273**(7325).

Gutierrez, S. L. and T. E. Welty (2004). "Point-of-Care Testing: An Introduction." Annals of Pharmacotherapy **38**(1): 119-125.

OBJECTIVE: To review available literature and provide perspective on point-of-care testing, focusing on the impact it has on treatment outcomes in patient care, the impact it has on the costs of patient care, and the role it has in the delivery of pharmaceutical care. **DATA SOURCES:** Information was retrieved from MEDLINE English literature searches using PubMed (1965-August 2003) and included search terms of point-of-care testing, near patient testing,

pharmaceutical care, pharmacists, outcomes, and economics. Additionally, references from retrieved articles were reviewed to identify literature not detected by literature searches. **STUDY SELECTION AND DATA EXTRACTION:** Comparative studies, demonstration project reports, and systematic reviews were selected. Other related resources, such as government documents, relevant legislation, and government regulations, were included. Emphasis was placed on comparative studies and demonstration project reports. In the absence of these data, other resources were included. **DATA SYNTHESIS:** Point-of-care testing devices and technology are increasingly used in the delivery of care and therapeutic decision making. No studies have evaluated the impact of point-of-care testing, by itself, on patient care and outcomes. All studies have incorporated point-of-care testing with changes in the way patient care is delivered and have shown significant improvements when this approach is taken. The cost of point-of-care testing is greater than traditional laboratory testing, but the increased cost may be offset by improvements in the management of patient care, improvements in patient outcomes, and decreased utilization of the healthcare system. Point-of-care testing has been used successfully by pharmacists in disease management programs. Various government regulations and legislation impact the use of point-of-care testing. **CONCLUSIONS:** Limited data indicate that point-of-care testing, when combined with changes in healthcare delivery systems, may improve patient outcomes and decrease the overall cost of health care. Pharmacists have used point-of-care testing in programs designed to improve patient care but must carefully consider regulations and laws that govern the use of these devices. There is a great need for additional investigation into the use of point-of-care testing in patient care.

Haines, S. T. (2002). "National diabetes education program: teaming up to prevent diabetes and its complications." J Am Pharm Assoc (Wash) **42**(5): 802-4.

Haugbolle, L. S., E. W. Sorensen, et al. (2002). "Basing pharmacy counselling on the perspective of the angina pectoris patient." Pharm World Sci **24**(2): 71-8.

AIM OF THE STUDY: A participatory action research study design was developed and tested in 40 Danish internship pharmacies as part of a 3-year study supported by the Research Centre for Quality in Medicine Use. The aim of the study was to create a foundation for improving the quality of counselling practice in pharmacies by comparing the pharmacy staff's views on, knowledge of and behaviour towards a specific patient group with the knowledge, perceptions and medication use of the same patients. **METHOD:** Pharmacy students in their fourth year collected data for the study. In 1999, the students carried out 123 qualitative interviews with angina pectoris patients and collected 569 questionnaires from pharmacy staff in 40 internship pharmacies. **RESULTS:** The results indicate that discrepancies exist between the patients' and pharmacy staff's perspectives on important issues such as knowledge about medicines (patients)/provision of information about medicines (pharmacy staff), experienced side effects (patients)/information about side effects (pharmacy staff), knowledge on prevention and lifestyle (patients)/information on lifestyle and prevention (pharmacy staff) and expectations of pharmacies (patients)/initiatives started in pharmacies (pharmacy staff). **CONCLUSION:** The study gives reason to believe

that angina pectoris patients might benefit if pharmacies provided more information on the relationship between lifestyle factors and angina pectoris, the possible side effects of medicines and the function of medicines.

Hebron, B., E. Graham-Clarke, et al. (2003). "The consultant clinical pharmacist's role." Pharmaceutical Journal **271**(7264).

Herborg, H., B. Soendergaard, et al. (2001). "Improving drug therapy for patients with asthma--part 1: Patient outcomes." J Am Pharm Assoc (Wash) **41**(4): 539-50.

OBJECTIVE: To evaluate the effects of a therapeutic outcomes monitoring (TOM) program on selected process and outcome measures. DESIGN: Prospective, controlled, multicenter study. SETTING: Community pharmacies throughout Denmark (16 intervention, 15 control). PATIENTS: Five hundred patients with asthma aged 16 to 60 years and treated in primary care. INTERVENTION: TOM is a community-based program for pharmaceutical care. Using a structured, seven-step, cyclical outcome improvement process, TOM pharmacists identify and resolve (or refer) problems with drug therapy that, if not addressed, might result in therapeutic failure or adverse effects. Equal emphasis is placed on the patient's perspective (e.g., coping, control, and empowerment) and the professional's perspective (e.g., adherence, patient knowledge, and therapeutic problems). TOM requires cooperation among pharmacists, patients, and physicians. MAIN OUTCOME MEASURES: Asthma symptom status, days of sickness, health-related and asthma-specific quality of life, use of health care services and resources, and satisfaction with health care and pharmacy. INTERMEDIATE OUTCOME AND PROCESS MEASURES: Peak expiratory flow rate (PEFR), knowledge of asthma and asthma medications, inhalation errors, and drug therapy problems in the TOM group. RESULTS: The mean individual differences for TOM and control patients were tested. Beneficial effects were found for the following outcome measures: asthma symptom status, days of sickness, and health-related and asthma-related quality of life. Satisfaction with health care and pharmacy varied throughout the course of the project, with no significant difference between groups at the final evaluation. Although not statistically significant, differences in use of services were considered to be clinically significant and encouraging. Beneficial effects were found for knowledge of asthma and medications, inhalation errors, drug use and drug therapy problems. No significant differences were found for PEFR. CONCLUSION: The project demonstrated that therapeutic outcomes monitoring by community pharmacists is an effective strategy for improving the quality of drug therapy for asthma patients in primary health care.

Holdford, D. A. (2004). "Using buzz marketing to promote ideas, services, and products." J Am Pharm Assoc (Wash DC) **44**(3): 387-95; quiz 395-6.

OBJECTIVE: To (1) discuss buzz marketing, contrast it with traditional forms of promotional communications, and provide guidelines for use and (2) describe a successful buzz-marketing program used by Sentara Healthcare to decrease overuse and inappropriate use of antibiotic medications. DATA SOURCES: An English-language-only literature search of ABI Inform, Lexus-Nexus, InfoTrac, and university library databases from 1980 to the present using the keywords

buzz, word of mouth, opinion leader, and thought leader. Articles and books were cross referenced for other works of interest. STUDY SELECTION: Performed by the author for their contribution to an exploratory analysis of this topic. DATA EXTRACTION: Performed by the author. DATA SYNTHESIS: Buzz marketing is an indirect communications method that has been used successfully in the promotion of a wide variety of products, services, and ideas. By identifying and cultivating nonmedia opinion leaders, the technique generates word-of-mouth communications between these early adopters of products and services and the early and late majority of people who tend to follow their lead. Opinion leaders can be categorized as ordinary or extraordinary, technical or social, and specialist or generalist, depending on the nature of their communications, expertise, and range of knowledge. Buzz marketing is most useful for ideas that are memorable, produce small changes in behavior that have big effects over time, and have the potential to reach a "tipping point" in terms of momentum among a target population. Pharmacists can use buzz marketing for promoting innovative services such as pharmaceutical care. A case study is presented on the use of buzz marketing by a health system for decreasing antibiotic resistance through lessening of public demand for antibiotics and support of physicians in prescribing the agents appropriately. CONCLUSION: Buzz marketing is a potent force in the promotion of pharmaceuticals and can be used by pharmacists. It works best when patients perceive the benefits of innovations. Providing samples and demonstrations of the innovation will foster positive perceptions. Innovations also spread better when they are compatible with the needs, desires, and preferences of individuals and can be adapted to the unique situation of the adopter.

Hourihan, F., I. Krass, et al. (2003). "Rural community pharmacy: a feasible site for a health promotion and screening service for cardiovascular risk factors." Aust J Rural Health 11(1): 28-35.

A pharmacist-delivered health promotion and screening service for cardiovascular risk factors in rural community pharmacy was implemented in the Upper Hunter Valley, New South Wales (NSW). We describe the development of the service and profile 204 participants at their initial screening. A standardised clinical protocol guided the pharmacist through delivery of the service. The mean age of participants was 44 years (SD +/- 13). Over half (54%) had a Body Mass Index (BMI) > 25, 54% had cholesterol > 5.0 mmol L⁻¹ and 18% a systolic BP > or = 140 mmHg and/or diastolic BP > or = 90 mmHg. Most (80%) received lifestyle information (dietary, exercise or smoking cessation). One third required referral to a general practitioner. Provision of the service through community pharmacy increased the community's access to screening, 28% reported that they had never had their cholesterol measured. Since this new service was able to identify, educate and refer people at risk of cardiovascular disease in a rural community, we recommend a broader adoption through rural pharmacies.

Howard, N., C. Tsourounis, et al. (2001). "Dietary supplement survey of pharmacists: personal and professional practices." J Altern Complement Med 7(6): 667-80.

OBJECTIVE: To survey pharmacists about personal/professional practices regarding dietary supplements, specifically personal use and recommendation

patterns, reference usage, and desired computerized decision-support features. DESIGN: Anonymous, self-administered survey. SETTING/LOCATION: National pharmacy association meeting. SUBJECTS: Practicing pharmacists who answered questions about dietary supplements. OUTCOME MEASURES: Acceptability of specific references, desired features in computerized decision support, frequency of personal use, and recommendations to patients, family, or friends. RESULTS: Seventy (70) pharmacists completed the survey. A majority (52.9%) reported taking dietary supplements including echinacea, zinc, and chromium picolinate. Fewer than half of pharmacists stated they have recommended a dietary supplement to a patient. Pharmacists stated that the top information sources were: published clinical trials, allopathic health care providers, alternative medicine practitioners, and word of mouth. The Internet was an important source for recommendations although not for personal use. The most highly accepted (>70%) print references included The Review of Natural Products and the World Health Organization Monographs on Selected Herbal Products. More than 90% rates the ability to view reference citations and computerized alerts on drug-dietary supplement interactions "very important" or "important". Interest was high in accessing computerized monographs. CONCLUSIONS: Pharmacists are self-educating about dietary supplements. Among pharmacists surveyed, there was some consensus as to which references were acceptable. There is a demand for dietary supplements information to be included in pharmacy computer systems, specifically to check for interactions against the patient's drug profile. Although practitioners in Western and alternative medicine, as well as journal articles, are preferred information sources, the Internet and word of mouth are also important sources. Personal use of dietary supplements correlated with a twofold increase in the likelihood that a pharmacist would recommend a dietary supplement to a patient.

Hudmon, K. S., R. L. Corelli, et al. (2003). "Development and implementation of a tobacco cessation training program for students in the health professions." Journal of Cancer Education **18**(3): 142-149.

Background. A comprehensive tobacco cessation training program, Rx for Change, was developed and implemented as required coursework at all California schools of pharmacy and at the University of California San Francisco Schools of Medicine and Dentistry. Results. Post-training evaluations administered to pharmacy students (n = 544; 89% participation) show a positive impact of the training on students' self-reported abilities for providing tobacco cessation counseling to patients. Conclusion. Designed as a vehicle for nationwide dissemination of the U.S. Public Health Service Clinical Practice Guideline for Treating Tobacco Use and Dependence, Rx for Change equips students with skills to intervene with all tobacco users, including patients who are not yet considering quitting.

Hudmon, K. S., K. K. Hemberger, et al. (2003). "The pharmacist's role in smoking cessation counseling: perceptions of users of nonprescription nicotine replacement therapy." J Am Pharm Assoc (Wash DC) **43**(5): 573-82.

OBJECTIVES: To characterize nonprescription nicotine replacement therapy (NRT) users with respect to sociodemographic characteristics, tobacco use

history, and support for tobacco cessation received from health care professionals; assess the methods used for quitting (past and present) by NRT users; assess NRT users' perceptions of the need for and usefulness of pharmacist-facilitated cessation interventions; and determine the types of pharmacy-based interventions that would be most helpful before and during quit attempts. DESIGN: One-time attitudinal assessment. SETTING: Primarily Northern California. PARTICIPANTS: One hundred three individuals who had recently purchased nonprescription NRT products for use during their current or upcoming quit attempt. INTERVENTION: In-depth telephone interviews. MAIN OUTCOME MEASURE: Perceptions of pharmacy-based tobacco cessation counseling services. RESULTS: The concept of pharmacist-facilitated assistance was appealing to many NRT users. Sixty-three percent of participants believed that receiving advice or assistance from a pharmacist would either probably (46%) or definitely (17%) increase a smoker's likelihood of being able to quit. Twenty-one percent were unsure, and 16% thought pharmacist assistance would not increase the chance of success. Forty-six percent reported that they would be either very or extremely likely to meet with a pharmacist for one-on-one counseling if a nominal (\$10) co-payment were required; this percentage increased to 68% if the service were provided free of charge. The preferred structure for counseling interventions varied widely among participants, suggesting that individually tailored counseling programs are necessary. CONCLUSION: A substantial proportion of nonprescription NRT users view pharmacist-assisted cessation as an appealing approach to smoking cessation.

Hudmon, K. S., L. A. Kroon, et al. (2004). "Training future pharmacists at a minority educational institution: Evaluation of the Rx for Change tobacco cessation training." Cancer Epidemiology, Biomarkers & Prevention **13**(3): 477-481.

Objective: To estimate the impact of Rx for Change, an 8-h tobacco cessation training program on pharmacy students' perceived counseling skills, confidence for counseling, and future counseling of patients for tobacco cessation. Methods: Unlinked, pre- and post-training surveys were administered to 142 pharmacy students enrolled at Texas Southern University, a primarily minority and historically black educational institution. Results: Post-training counseling abilities were significantly improved over pretraining values for each of the five key components of tobacco cessation counseling (Ask, Advise, Assess, Assist, and Arrange), overall counseling abilities, and confidence for counseling ($P < 0.001$). Racial/ethnic differences in self-reported overall counseling was observed ($P = 0.01$). Ninety-one percent of participants believed that the training would increase the number of patients whom they counsel for cessation, and 95% believed that it would improve the quality of counseling that they provide. At least 95% of participants believed that the pharmacy profession should be more active in preventing patients from starting smoking and helping patients to stop smoking. Conclusion: The Rx for Change program had a positive impact on perceived abilities and confidence for providing tobacco cessation counseling to patients. While it is important that all current and future health care providers receive specialized tobacco cessation training, it is particularly important for clinicians of racial/ethnic minority backgrounds, who are more likely to practice in geographic areas with a high density of population subgroups at an elevated risk for tobacco-

related mortality. In particular, pharmacists, who are uniquely positioned within the community to provide care to all patients, including the medically underserved, must be equipped with the necessary skills to assist patients with quitting.

Huntzinger, P. E. (2003). "Implementing a pharmacy patient education center." Mil Med **168**(8): 643-7.

Ambulatory care federal pharmacists may be readily used by beneficiaries to obtain verbal and written pharmaceutical and/or medical information because of their high visibility and accessibility. In addition to information provided for prescription medications, pharmacists may provide medication and disease information through a patient education center. A patient education center may contain written information in the form of pamphlets, booklets, or tear-off sheets, static displays such as posters, or interactive devices such as computers. The purpose of this study is to describe implementation of a patient education center consisting of written information and static displays at a Coast Guard pharmacy. The processes described in this study may be emulated by other health care professionals in a variety of settings.

Irons, B. K., R. J. Lenz, et al. (2002). "A retrospective cohort analysis of the clinical effectiveness of a physician-pharmacist collaborative drug therapy management diabetes clinic." Pharmacotherapy **22**(10): 1294-300.

The glycemic control of patients with diabetes in a physician-supervised, pharmacist-managed primary care clinic was compared with that of patients receiving standard care in the same health care system. We retrospectively analyzed the glycemic control of 87 men with type 1 or type 2 diabetes whose diabetes-related drug therapy was managed by clinical pharmacists compared with a control group of 85 similar patients whose care was not augmented by clinical pharmacists. Primary outcomes were differences in fasting blood glucose (FBG) and glycosylated hemoglobin (A1C) levels between groups. Secondary outcomes were relative risk (RR) for achieving an A1C of 7% or below, frequency of diabetes-related scheduled and unscheduled clinic visits, and frequency of hypoglycemic events. The study group had 864 clinic visits and the control group had 712 between October 1997 and June 2000. No statistical differences were noted in FBG or A1C between groups. The RR of achieving an A1C of 7% or below was significantly higher in the study cohort (RR 5.19, 95% confidence interval [CI] 2.62-10.26). The frequency of hypoglycemic events did not differ between groups. The mean \pm SD frequency of unscheduled diabetes-related clinic visits/patient/year was higher in the control group (1.33 \pm 3.74) than in the study group (0.11 \pm 0.46, $p = 0.003$). Pharmacist-managed diabetes care was effective in improving glycemic control and was not associated with an increased risk for hypoglycemic events or unscheduled diabetes-related clinic visits.

Jackson, A. B., T. L. Humphries, et al. (2004). "Clinical pharmacy travel medicine services: a new frontier." Ann Pharmacother **38**(12): 2160-5.

Travel to remote destinations has increased dramatically in recent years. The Clinical Pharmacy International Travel Clinic (CPITC) was established in 1991 in the Kaiser Permanente Colorado Region to provide pre-travel advice to members

to decrease their risk of travel-related diseases. The CPITC is unique from other travel medicine clinics because it is a pharmacist-run telepharmacy service. The team includes an infectious diseases physician, an infectious diseases clinical pharmacy specialist, 4 clinical pharmacists, and a pharmacy technician. The clinical pharmacists provide consultations via telephone. Both patient- and trip-related information are gathered to assess the traveler's health risks. Recommendations are provided regarding food- and water-borne diseases, insect-borne diseases, sexually transmitted diseases, and diseases related to animal bites. Additionally, detailed information is provided on vaccines that may be needed to protect travelers against various diseases. The travel consult is documented electronically. A copy of the consult, along with a booklet that provides travel information, is mailed to the patient. Success of the CPITC is demonstrated in several ways. The clinic initially served Kaiser Permanente members in the Colorado Region. The service has expanded and now also provides travel consults to Kaiser Permanente members in the Northwest and Ohio Regions. Patient satisfaction is high, and significant cost-savings have been realized secondary to avoiding the use of unnecessary vaccinations and medications. The CPITC allows resources to be leveraged and provides one center where individuals trained in travel medicine provide information to members, thus improving efficiency and decreasing cost.

Jackson, M. W. (2002). "Pharmacists are the experts [9]." Pharmaceutical Journal **268** (7191).

Jackson, S. L., G. M. Peterson, et al. (2004). "Point-of-care monitoring of anticoagulant therapy by rural community pharmacists: description of successful outcomes." Aust J Rural Health **12**(5): 197-200.

Warfarin is a recognised high-risk drug for adverse events. Patients from rural and remote regions are at increased risk of these events because of problems of access to health care providers and services, and there is some reluctance to prescribe warfarin to patients in rural areas because of the difficulties in monitoring anticoagulated patients. The availability of portable international normalised ratio (INR) monitors is particularly attractive in rural or remote settings because of the lack of access to pathology services. Pharmacists and other health professionals in rural areas are ideally placed to assist general practitioners in the management of their anticoagulated patients through the use of portable INR monitors. The present article describes three cases of successful outcomes of pharmacist-assisted anticoagulation monitoring in the rural setting. Innovative service delivery models like these are needed to meet the needs of the increasing number of rural Australians requiring warfarin therapy.

Jimenez, F. J. and H. A. Monsanto (2001). "Screening, monitoring, and educating patients with diabetes in an independent community pharmacy in Puerto Rico." P R Health Sci J **20**(1): 35-9.

OBJECTIVE: Increase the awareness about the importance of Diabetes mellitus (DM) management and assess the educational and monitoring needs of patients visiting a community pharmacy in Puerto Rico. METHODS: A community service activity focusing on DM was held in a community pharmacy. The educational and

monitoring needs of the participants were assessed using a questionnaire. Glucose tests were conducted in the pharmacy by medical technologists. Educational activities consisted of presentations and printed materials. RESULTS: Two-thirds of the fasting people had blood glucose levels higher than 140 mg/dl. Seventy-nine percent of the patients with diabetes were not aware of the glycosylated hemoglobin test. Most of the patients were interested in learning more about how to manage their condition. CONCLUSION: A greater understanding is needed among patients with DM that blood glucose control decreases diabetes related complications. Community pharmacists are in an excellent position to collaborate with other health professionals in screening, monitoring and educating patients with DM to prevent long-term complications.

Jones, C., M. Armstrong, et al. (2004). "How pharmacy can help public health." Pharmaceutical Journal **272**(7301): 672-674.

Kerr, S. (2002). "The medicines information pharmacist's role." Hospital Pharmacist **9** (6): 164-166.

This overview of medicines information, includes the type of activities undertaken, and the resources, skills and training required to provide an MI service.

King, R. (2004). "UK pharmacies pilot screening project for heart disease." Canadian Pharmaceutical Journal **137**(2): 23-24.

Kozma, C. M. (2003). "The role of independent community pharmacists in disease management." Managed Care Interface **16**(1): 45-46.

The National Community Pharmacists Association has taken an active role in disease management and has become a sentinel for pharmacy care services provided by independent community pharmacists. The Association sponsors disease management certificate programs for its members in such clinical areas as arthritis and pain, biotechnology specialty products, rheumatoid arthritis, cardiovascular care, diabetes, immunization, lipid management, respiratory care, and many others.

Lai, L. K., E. P. Armstrong, et al. (2003). "Women's Perception of Bone-Mineral Density Testing and Osteoporosis Education in the Community Pharmacy." Consultant Pharmacist **18**(11): 968-976.

Objective: The objective of this study was to assess women's level of acceptance and attitudes toward bone-mineral density (BMD) testing and osteoporosis education in the community pharmacy. Design: The study design was a questionnaire with 13 statements using a five-point scale anchored from 'strongly disagree' to 'strongly agree.' The statements focused on the value and comfort level of BMD testing in a pharmacy, confidence in pharmacists, osteoporosis education in the pharmacy, and payment for such services. One-sample t-tests were used to assess whether the responses statistically differed from the midpoint scale value. Comparisons also were made between demographic characteristics (education level, family history of osteoporosis, and daily calcium intake). Setting: An independently owned grocery store chain (Bashas') in the

Phoenix, and Tucson, Arizona, metropolitan areas. Patients: The survey was administered to women upon completion of a BMD screening. Main Outcome Measures: Responses to 13 statements and demographic questions. Results: Eighty women completed the survey. Women strongly agreed that BMD testing in community pharmacies was valuable and that it would increase the public's awareness of osteoporosis. For all 13 statements, respondents strongly agreed or agreed with the importance and role of BMD testing. All responses were statistically significantly greater than the midpoint scale value ($P < 0.001$). There were no statistically significant differences in responses among women with higher education, with a family history of osteoporosis, and who take daily calcium ($P > 0.05$). Conclusions: These women's opinions suggest that BMD testing has a useful role in community pharmacies.

Lata, P. F., N. C. Binkley, et al. (2002). "Acceptability of pharmacy-based bone density measurement by women and primary healthcare providers." Menopause 9(6): 449-55. OBJECTIVES: To assess women's information sources regarding, and monetary value placed on, pharmacy-based bone density screening. In addition, we evaluated clinicians' response to peripheral bone mass measurements. DESIGN: We recruited 197 women 50 years of age or older in four rural Midwestern community pharmacies. Each woman completed a questionnaire and underwent calcaneal bone density testing. Results were sent to participants' primary care providers. These providers, and others practicing within a 50-mile radius, were surveyed anonymously to evaluate usefulness of bone density data provided by this program or pharmacy-based osteoporosis screening in general. In addition, clinicians were asked how they would manage a woman with a calcaneal T-score of -1.3. RESULTS: Fifty-six percent of participants [95% CI, 49%-63%] became interested in screening through the media, and only 6% (CI, 3%-9%) became interested through contact with their primary care provider. Women were willing to pay a median of \$25 for screening. Of 18 responding clinicians with patients in this study, 72% (CI, 47%-90%) found the results useful. Of the 67 responding clinicians, 51% (CI, 39%-63%) supported pharmacy-based bone mass measurement. For a case scenario of a woman with a calcaneal T-score of -1.3, 57% (CI, 46%-68%) of clinicians indicated that they would have ordered central dual-energy x-ray absorptiometry, and 20% (CI, 11%-29%) would have prescribed antiresorptive therapy. CONCLUSIONS: This study suggests that (1) women are an important force in obtaining bone density testing outside the clinic setting, both by self-education and willingness to pay, and (2) primary care clinicians receiving such results find them useful and indicate willingness to use them in decision-making.

Lata, P. F., M. Mainhardt, et al. (2004). "Impact of nurse case manager-pharmacist collaboration on adverse-drug-event reporting." Am J Health Syst Pharm 61(5): 483-7.

Lee, S. S., P. Y. Cheung, et al. (2004). "Benefits of individualized counseling by the pharmacist on the treatment outcomes of hyperlipidemia in Hong Kong." J Clin Pharmacol 44(6): 632-9.

A prospective controlled study on the benefits of pharmacists' individualized counseling on drug compliance, cholesterol concentration reduction, attainment

of National Cholesterol Education Program (NCEP) Adult Treatment Panel III (ATP III) low-density lipoprotein cholesterol (LDL-C) goals, and patient satisfaction was carried out in a private community hospital in Hong Kong. All patients who were newly prescribed with lipid-lowering drugs for primary prevention were included. The patients in the individualized counseling group received "intense" counseling and follow-up of cholesterol concentration by a pharmacist for 3 months. The control group received routine counseling. Fifty patients completed the study (26 in the individualized group, 24 in the control group). Compliance was assessed, and those patients who achieved 75% compliance were defined as compliers. In the individualized group, 76.9% were compliers compared with 41.7% in the control group ($p < 0.01$). The individualized group achieved 28.3%, 27.7%, and 26.1% reduction in total cholesterol, LDL-C, and triglycerides, respectively, compared with 15.3%, 16.3%, and 10.6% in the control group ($p < 0.05$ for all). Also in the individualized group, 80.8% achieved the ATP III LDL-C goals compared to 58.3% in the control group ($p < 0.05$). Of patients in the individualized group, 85% felt that the pharmacist counseling service could improve their disease management. The study demonstrated that pharmacists' individualized counseling, together with the assessment of cholesterol concentrations, had positive impacts on the management of hyperlipidemia, including improved drug compliance, better treatment endpoints, and patient satisfaction.

Lee, S. S. C., P. Y. Cheung, et al. (2004). "Benefits of individualized counseling by the pharmacist on the treatment outcomes of hyperlipidemia in Hong Kong." Journal of Clinical Pharmacology **44**(6): 632-639.

A prospective controlled study on the benefits of pharmacists' individualized counseling on drug compliance, cholesterol concentration reduction, attainment of National Cholesterol Education Program (NCEP) Adult Treatment Panel III (ATP III) low-density lipoprotein cholesterol (LDL-C) goals, and patient satisfaction was carried out in a private community hospital in Hong Kong. All patients who were newly prescribed with lipid-lowering drugs for primary prevention were included. The patients in the individualized counseling group received 'intense' counseling and follow-up of cholesterol concentration by a pharmacist for 3 months. The control group received routine counseling. Fifty patients completed the study (26 in the individualized group, 24 in the control group). Compliance was assessed, and those patients who achieved 75% compliance were defined as compliers. In the individualized group, 76.9% were compliers compared with 41.7% in the control group ($p < 0.01$). The individualized group achieved 28.3%, 27.7%, and 26.1% reduction in total cholesterol, LDL-C, and triglycerides, respectively, compared with 15.3%, 16.3%, and 10.6% in the control group ($p < 0.05$ for all). Also in the individualized group, 80.8% achieved the ATP III LDL-C goals compared to 58.3% in the control group ($p < 0.05$). Of patients in the individualized group, 85% felt that the pharmacist counseling service could improve their disease management. The study demonstrated that pharmacists' individualized counseling, together with the assessment of cholesterol concentrations, had positive impacts on the management of hyperlipidemia, including improved drug compliance, better treatment endpoints, and patient satisfaction.

Lee, V. W. and P. Y. Leung (2003). "Glycemic control and medication compliance in diabetic patients in a pharmacist-managed clinic in Hong Kong." Am J Health Syst Pharm **60**(24): 2593-6.

Letassy, N. A., B. L. Armor, et al. (2003). "Pharmacist-managed diabetes service in a family medicine practice improves patient outcomes." Drug Benefit Trends **15**(SUPPL. H).

A collaborative disease management service staffed by pharmacists provided comprehensive care for diabetes patients served by the Family Medicine Center at the University of Oklahoma Health Sciences Center, Oklahoma City. Health insurance coverage for more than half of the patients was provided by Medicaid. Patients received a range of preventive, education, and monitoring services. After 1 year, patients averaged a 3.1% reduction in mean glycosylated hemoglobin values. The improvement in health outcomes for 600 patients is estimated to result in a total health care cost savings over 1 year of at least \$244,500 after factoring in the costs of the pharmacists' services.

Levenson, D. (2003). "Pharmacy project cuts diabetes costs and improves outcomes." Rep Med Guidel Outcomes Res **14**(8): 1-2, 5, 7.

Li, S. C. (2003). "An overview of community pharmacist interventions: Assessing cost-effectiveness and patients' willingness to pay." Disease Management & Health Outcomes **11**(2): 95-110.

This article evaluates the cost effectiveness of and patients' willingness to pay for interventions by community pharmacists in the overall context of pharmaceutical care. The rationale for interventions by pharmacists in patient care is examined from the viewpoint of clinical and economic needs of the healthcare system. The philosophy of the practice of pharmaceutical care is compared with that of disease management. The analysis shows that both clinical and economic deficiencies exist in the current healthcare system that the practice of pharmaceutical care could help to rectify. More importantly, there is congruence in the practice philosophies between pharmaceutical care and disease management, with both being patient centered and outcome focused. Therefore, the practice of pharmaceutical care can be facilitated within the context of disease management. There are many examples showing that interventions by community pharmacists can result in cost savings. However, there are few studies on consumers' willingness to pay for such services provided; those to date suggest that consumers are willing to pay a modest amount for pharmaceutical care provided by community pharmacists. Barriers for implementing pharmaceutical care by community pharmacists are discussed, and some suggestions of strategies to be adopted for the successful implementation of pharmaceutical care are made. The author is of the view that before full reimbursement for pharmaceutical care is achieved, the successful implementation of pharmaceutical care by community pharmacists will hinge on better utilization of available resources and improvement in communications between pharmacists, patients and other healthcare professionals. Coordinated and systematic efforts would be required to collect information regarding consumers' willingness to pay in order to assist in negotiating an acceptable level

of reimbursement. Finally, in this age of accountability in healthcare, it is necessary for community pharmacists to demonstrate the benefits of their interventions in terms of better outcomes whether they be clinical, economic and humanistic, and that the improvement is achieved at a cost acceptable to the healthcare system. Without the evidence of acceptable cost effectiveness and perceived benefits, any attempt to promote the implementation of pharmaceutical care by community pharmacists, especially in countries where the concept is relatively new, would only be perceived as lobbying for the interest of a particular professional group, and could not be justifiable.

Lloyd-Williams, F. (2003). "The effect of an intervention programme to improve health education leaflet uptake and distribution in community pharmacies." Patient Education & Counseling **49**(1): 27-33.

The effect of an intervention programme to improve health education leaflet uptake in community pharmacies was conducted with a small convenience sample of 12 community pharmacies in North Staffordshire, UK. The intervention consisted of four different modes of leaflet provision. Modes 1 and 2 (without and with overt offer of advice from pharmacist respectively) relied upon the pharmacy client to actively obtain a leaflet, whereas Modes 3 and 4 (without and with offer of advice from pharmacist respectively) relied upon pharmacy staff to actively provide a leaflet. All 12 community pharmacies received 50 copies of a purposefully designed leaflet. The intervention extended over one calendar month. Data was collected during the intervention via monitoring forms completed by the pharmacist on a day to day basis, and interviews were conducted with the pharmacists at the end of the study. The overall uptake or distribution rate of leaflets was 64%. In both modes which offered advice (Modes 2 and 4), approximately one of every five leaflet recipients sought advice. The community pharmacists considered the intervention to be feasible, effective and enabled the utilisation of their skills. (C) 2002 Elsevier Science Ireland Ltd. All rights reserved.

Lopez, L. M. and J. R. Taylor (2004). "Home blood pressure monitoring: point-of-care testing." Ann Pharmacother **38**(5): 868-73.

OBJECTIVE: To review the literature regarding point-of-care blood pressure monitoring and describe its role in pharmacy practice. DATA SOURCES: Primary articles were identified by a MEDLINE search (1966-May 2003); references cited in these articles provided additional resources. STUDY SELECTION AND DATA EXTRACTION: All articles identified from this search were reviewed and all information deemed relevant was included in this article. DATA SYNTHESIS: Hypertension is a well-established risk factor for coronary heart disease, the leading cause of death in the US. The use of at-home blood pressure monitors may help improve identification and management of this disorder. Pharmacists may use many of these devices in their practice and are also in an ideal position to provide patient education on the selection and use of these monitors, as well as interpretation of results. CONCLUSIONS: The availability of at-home blood pressure devices has considerably increased in recent years and likely will continue to do so. Based on currently available but limited data, fully automated or semiautomated upper-arm devices are preferred over wrist- or finger-cuff

devices. These devices are best suited for screening and monitoring only and should not be used for diagnosis. Although such devices are potentially cost-effective, there is presently insufficient evidence to support the notion that their use can replace routine office monitoring.

Lyszkiewicz, D. A., S. Gerichhausen, et al. (2001). "Evidence based information on drug use during pregnancy: a survey of community pharmacists in three countries." Pharm World Sci **23**(2): 76-81.

OBJECTIVE: To evaluate whether community pharmacists provide evidence-based information to women inquiring about specific drug use during pregnancy. **DESIGN:** A trained female student posing as a surrogate shopper requested information about the relative safety/risks of medications during pregnancy in two scenarios. Forty randomly selected pharmacies were surveyed in the Netherlands, Canada and Iceland, and pharmacists' recommendations were noted. Main outcome measures included the type of information that was provided, its presentation, and the source of information used. **RESULTS:** A relatively small proportion of pharmacists surveyed, provided evidence-based information regarding the drugs in question. Only 14% referred to current medical literature, while 60% consulted the product monograph. Over 90% of pharmacists referred the client to a physician. **CONCLUSIONS:** Community pharmacists do not disseminate evidence-based recommendations when counseling women on drug use in pregnancy, and need further education on resources concerning drugs in pregnancy that are currently available.

Maguire, T. (2002). "Helping community pharmacists in their emerging public health roles." Pharmaceutical Journal **269**(7227).

Maguire, T. (2003). "Ways to help change behaviour." Pharmaceutical Journal **271**(7279): 813-815.

Maguire, T. (2005). "Irrational humans and public health." Pharmaceutical Journal **274**(7336).

Maguire, T. A., J. C. McElnay, et al. (2001). "A randomized controlled trial of a smoking cessation intervention based in community pharmacies." Addiction **96**(2): 325-331.

Aims. To evaluate whether a structured community pharmacy-based smoking cessation programme (the PAS model) would give rise to a higher smoking cessation rate compared with ad hoc advice from pharmacists. **Design.** A randomized controlled trial comparing a structured intervention with usual care. **Setting.** One hundred pharmacists working in community pharmacies in N. Ireland and 24 in London took part in the study and were each asked to enroll 12 smokers; 44% of pharmacists who were trained managed to recruit one or more smokers during the recruitment period of approximately 1 year. **Participants.** A total of 484 smokers were enrolled by the pharmacists and individually randomized into the PAS intervention group (N = 265) or the control group (N = 219). **Intervention.** The PAS intervention involved a structured counselling programme, an information leaflet and a follow-up weekly for the first 4 weeks then monthly as needed. **Measurements.** The primary outcome measure of this

study was self-reported smoking cessation for 12 months with cotinine validation at the 12-month follow-up. Findings. Of smokers in the PAS group, 14.3% (38) were abstinent up to 12 months compared with 2.7% (6) in the control group ($p < 0.001$ for the difference). Conclusion. The community pharmacy-based PAS smoking cessation service can be an effective method of helping people stop smoking when delivered by pharmacists willing to adopt this approach.

Maher Jr, R. L. (2004). "A Pharmacist Approach to Wellness Maintenance in the Community Elderly." Journal of Pharmacy Practice **17**(2): 133-136.

Wellness prevention in the elderly has similar goals as prevention in nonelderly adults, which is to improve lifestyles and habits to prevent disease (primary prevention) or the progression of disease (secondary prevention). Pharmacists who interact with the community elderly have a great opportunity of helping to keep our elderly healthy and preventing lifelong chronic problems that can contribute to a decrease in function of activities of daily living (ADLs) and instrumental activities of daily living (IADLs). This article focuses on the key prevention interventions that a pharmacist can target in helping to promote health maintenance.

Mahtabjafari, M., M. Masih, et al. (2001). "The value of pharmacist involvement in a point-of-care service, walk-in lipid screening program." Pharmacotherapy **21**(11): 1403-6.

The leading cause of death in the United States is heart disease. Because an elevated serum cholesterol level is an independent risk factor for development of coronary heart disease (CHD), individuals older than 20 years of age are advised to have their cholesterol level checked every 5 years. Walk-in screening programs are becoming popular as a method of health care delivery. The program at the University of California-Irvine Medical Center administers point-of-care, low-cost lipid profile testing, directly involves patients in their own care, and provides individualized education to patients regarding cardiovascular risk reduction. A total of 301 patients participated in the program between August 1998 and September 2000. Fifty percent of them (150 patients) required intervention; 34% of these (52 patients) were previously undiagnosed. Their mean age was 57 +/- 13 years; 35% were women, 53% had two or more cardiac risk factors, and 5% had CHD. Based on the National Cholesterol Education Program guidelines, 29% had low-density lipoprotein levels above target, 23% had triglyceride levels higher than recommended, and 21% had high-density lipoprotein levels below target. It is our hope that our successful experience with the program will encourage pharmacists to develop similar programs.

Marken, P. A. (2001). "Depression - A treatable public health problem: The role for pharmacists in optimizing patient outcome." Journal of Pharmacy Practice **14**(6): 444-447.

Marshik, P. (2003). "Pharmacists and allergists: working together to improve the management of patients with asthma and allergies." J Am Pharm Assoc (Wash DC) **43**(3): 439-40.

Mason, P. (2004). "What advice can pharmacists offer travellers to reduce their health

risks?" Pharmaceutical Journal **273**(7323): 651-656.

Matheson, C., C. M. Bond, et al. (2002). "Community pharmacy services for drug misusers in Scotland: what difference does 5 years make?" Addiction **97**(11): 1405-11.

AIMS: To assess current levels of participation of community pharmacists in needle exchange provision, assess participation in dispensing any drugs for drug misuse, explore methadone dispensing practice, assess involvement in health promotion for drug misusers, assess levels of training in drug misuse and compare all of the above with data from 5 years previously. DESIGN: A cross-sectional postal questionnaire. SETTING: All community pharmacies in Scotland (n = 1162). PARTICIPANTS: A total of 969 pharmacists managing community pharmacies on a day-to-day basis (response rate 83.4%). MEASUREMENTS: Descriptive data were collected on demography, drug misuse services provided and training. Data were combined with a dataset from an identical survey conducted 5 years previously for statistical comparison. RESULTS: Levels of needle exchange provision has not changed significantly (9.7% in 2000 compared to 8.6% in 1995). Of all respondents, 71.5% now dispense drug for the management of drug misuse, 68.9% dispense methadone and 56.7% provide a supervised methadone consumption service. The number of methadone clients receiving methadone through pharmacies has increased from 3387 in 1995 to 8792 in 2000 and the mean number of clients dispensed methadone per pharmacy has increased from 7.3 in 1995 to 13.2 in 2000; 65.1% of all methadone clients now consume their methadone under pharmacist supervision. The proportion of pharmacists dispensing methadone who provide a supervised consumption service has increased significantly from 37% to 82.8%. Considerable changes in pharmacy practice are evident with significant increases in the number of pharmacists who always lay down ground rules, ask for identification on first visits, make up prescriptions in advance and provide verbal advice and leaflets on the management of drug misuse. Training in drug misuse doubled from 31.8% to 66.8%. CONCLUSIONS: Community pharmacy involvement with drug misusers has increased dramatically in the last 5 years. However, this increase is largely in methadone dispensing and supervision. Pharmacists appear to be more proactive in providing advice and information, perhaps as a result of greater training.

Matowe, L. (2002). "How should the profession respond to pharmacy's poor public image?" Pharmaceutical Journal **269**(7223).

McAnaw, J. J., A. M. McGregor, et al. (2001). "The pharmaceutical care of patients with hypertension: an examination of service models in primary care in the US." Pharm World Sci **23**(5): 189-94.

BACKGROUND: In the UK, the delivery of health care in cardiovascular disease is guided by national service frameworks', which are a source of standards of practice and evidence that help to define and aid the implementation of service models capable of responding to public health goals. The revised British Hypertension Society guidelines reflect a lower target blood pressure consistent with those recommended in the US and by the WHO. The lowering of the target for the control of blood pressure has increased the estimated proportion of

treated patients with inadequate control in the UK from 37% to 72%.

OBJECTIVE: To identify the requirements for the provision of a pharmacy service that supports hypertension monitoring, and to gain insights into how such a service might be delivered as part of a wider provision of pharmaceutical care in the UK. **METHOD:** Two pharmacists followed a structured programme of observation involving three centres in the United States (Minnesota, Colorado and Iowa). Twelve clinical settings were observed, and the pharmacists who provided the services were also the subjects of documented interviews. The settings offered different models of pharmaceutical care from which issues relevant to the international development of such services were identified.

FINDINGS: Differences noted between the service models observed included; physical environment of the community pharmacy, the use and type of documentation, methods of blood pressure measurement, extent of monitoring and follow-up, inter-professional communication and service orientation in terms of the provision of comprehensive pharmaceutical care to patients or specific disease management. **CONCLUSION:** If clearly defined operational models of pharmaceutical care practice in the primary care setting are to form part of a national public health strategy in the UK, they must also be capable of responding to local opportunities and patients' needs. Future development of models and services must be patient-centred and more widely informed by the range of practice experience gained elsewhere.

McCallian, D. J. and N. H. Cheigh (2002). "The pharmacist's role in self-care." J Am Pharm Assoc (Wash) **42**(5 Suppl 1): S40-1.

Self-care involves a variety of actions that patients take to manage their health. Pharmacists play an important role in guiding patient's self-care behaviors. Thorough assessment and effective communication are crucial to meaningful self-care counseling. Pharmacists can act as advocates who empower patients and help them make sound decisions about self-care.

McCormack, J. P., L. Dolovich, et al. (2003). "Providing evidence-based information to patients in general practice and pharmacies: what is the acceptability, usefulness and impact on drug use?" Health Expect **6**(4): 281-9.

BACKGROUND: A common and often integral method of delivering patient information is the use of patient guides. However, the acceptability, utility and impact of evidence-based therapeutic guides on physicians, pharmacists and patients have not been well evaluated. **METHODS:** This study was a prospective evaluation of 53 general practitioners' offices and 30 community pharmacies from three locations in Canada. Evidence-based guides were provided to 1176 patients who presented to either a general practitioner or a community pharmacist and were interested in receiving information about sore throat, heartburn, or osteoporosis (<http://www.ti.ubc.ca/canadadrugguide>). The acceptability, utility and impact of the guides were assessed via structured patient telephone interviews, structured health professional interviews, and patient chart audits. **RESULTS:** Eighty to 90% of patients reported that the guides were 'very easy' to understand. Fifty six per cent/47%/38% (sore throat/heartburn/osteoporosis) of patients rated the guides as 'very' or 'extremely' useful. Seventy-two per cent/67%/58% of respondents reported that

the information helped them make decisions about their treatment. Ninety eight per cent of physicians and 92% of pharmacists reported that the guides helped their patients understand the issues involved in their treatment. None of the analyses showed any significant differences in prescribing of medications between the intervention and control groups. INTERPRETATIONS: Patients found these evidence-based guides to be useful, easy to understand, and that they helped them in their understanding of treatment options and the decision-making process. Physicians and pharmacists reported that the guides helped their patients understand the issues involved in their treatment. Further research is required to determine the degree to which providing evidence-based guides to patients can impact on prescribing and patient outcomes.

McDermott, J. H. and D. B. Christensen (2002). "Provision of pharmaceutical care services in North Carolina: a 1999 survey." J Am Pharm Assoc (Wash) **42**(1): 26-35.

OBJECTIVE: To describe the extent of and factors associated with the provision of pharmaceutical care services (PCS) and value-added pharmaceutical services (PS) by pharmacists in North Carolina, the physical changes made in pharmacies to accommodate these services, the nature and extent of prior consent or collaborative practice arrangements between North Carolina pharmacists and prescribers, and the frequency of reimbursement for PCS. DESIGN: Descriptive study based on a mail survey. PARTICIPANTS: Pharmacist-managers at each of the 2,048 licensed pharmacy sites in North Carolina; a list of licensed pharmacies provided by the North Carolina Board of Pharmacy was used as the sampling frame. MAIN OUTCOME MEASURES: Pharmacists' reports of PCS and pharmacy demographics. RESULTS: Response rate was 40%. More than 30% of respondents provided PCS at their site, although only 20% met our more stringent definition of PCS (i.e., ensuring appropriate pharmacotherapy, ensuring patient understanding and adherence, and monitoring and reporting patient outcomes). Services were more frequently offered by university-affiliated (35%) or independent (32%) pharmacies. The median number of patients receiving PCS across all sites was 10 per week. Diabetes was the most common health problem for which PCS were offered. Three variables-weekly prescription volume (positive correlation); number of staff pharmacists with advanced training, specifically fellowship training; and medical clinic/health maintenance organization setting-were significant predictors of the numbers of patients provided PCS. Independent community pharmacies were most likely to have private counseling areas and to bill for and receive payment for PCS. CONCLUSION: In North Carolina, a substantial number of pharmacists provided PCS in 1999 or planned to do so in the near future. However, the number of patients receiving PCS was relatively low. Practice setting, pharmacist education level, and prescription volume were weakly predictive of the number of patients receiving PCS. Pharmacists commonly used prior consent arrangements with physicians in their practices, but primarily to facilitate generic substitution. Relatively few pharmacists billed for PS or PCS.

McDonough, R. P. and W. R. Doucette (2003). "Drug therapy management: an empirical report of drug therapy problems, pharmacists' interventions, and results of pharmacists' actions." J Am Pharm Assoc (Wash DC) **43**(4): 511-8.

OBJECTIVES: To determine the number and types of drug therapy problems identified by pharmacists at six community pharmacies, identify the interventions made by these pharmacists in their attempts to resolve drug therapy problems, and determine the results of the pharmacists' actions taken to resolve drug therapy problems. **DESIGN:** Retrospective review of patient records from pharmacies. **SETTING:** Six community pharmacies that had participated in Project ImPACT: Hyperlipidemia. **PATIENTS:** One hundred sixteen patients from Project ImPACT: Hyperlipidemia. **INTERVENTION:** Drug therapy problems, pharmacists' interventions, and results of pharmacists' actions were identified and categorized. Drug therapy problems were classified into seven categories, pharmacists' interventions into six categories, and results were categorized into eight types. Frequencies and descriptive statistics were calculated for the measures. **RESULTS:** A total of 512 initial drug therapy problems were reported for 116 patients in the 6 pharmacies. In addition to the initial interventions, pharmacists documented another 545 times in which they intervened on the original problems. There were 354 (69.1%) drug therapy problems associated with hyperlipidemia and 158 (30.9%) with other conditions. Overall, most common types of drug therapy problems were needs additional therapy (39.8%) and nonadherence to therapy (31.1%). The most common discretionary pharmacist interventions were patient education and physician communication, which occurred on average 4.63 and 3.30 times during the project period. The most common consequence of a pharmacist intervention was an increase in patient adherence, which was reported for almost half of the patients. **CONCLUSION:** Drug therapy management (DTM) for patients with dyslipidemias identified frequent drug therapy problems associated with both hyperlipidemia and other conditions. Pharmacists used interventions that included laboratory testing, patient monitoring, patient education, and physician communication to influence patient adherence and optimize drug therapy. Although further research is needed, the findings of this analysis are promising for the more widespread adoption of a DTM role by community pharmacists.

McGovern, E. M., C. Mackay, et al. (2001). "Pharmaceutical care needs of patients with angina." *Pharm World Sci* **23**(5): 175-6.

OBJECTIVE: The aim of this study was to evaluate patient knowledge and assess the management of angina for patients receiving sublingual glyceryl trinitrate (GTN) **METHOD:** Prospective data collection and patient interview was undertaken in 17 community pharmacies. **RESULTS:** During the study 488 angina patients presented to the participating pharmacies. Data were collected for 347 patients receiving sublingual GTN. Problems with administration technique were identified for 108 patients (31%) and knowledge of when to seek medical help appropriately after failed GTN use was unsure for 134 patients (39%) or poor for 88 patients (25%). Eighty five patients (24%) were not receiving regular symptomatic therapy. Aspirin was prescribed or purchased by 253 patients (73%). Seven pharmacies participated in GP referral (data collected for 201 patients); 31 patients (15%) were referred usually with a recommendation to add aspirin. The outcome of 20 of these referrals was assessed; advice was taken for 13 patients, 3 patients failed to attend GP, aspirin was contraindicated for 3 patients and one patient already attended pharmacist medication review.

CONCLUSION: This study demonstrated the potential contribution community pharmacists could make at the time of dispensing to the management of patients with angina.

McKenney, J. M., J. C. Bradberry, et al. (2004). "National survey of pharmacists about coronary heart disease, hypercholesterolemia, nonprescription statin therapy, and pharmacists' services." J Am Pharm Assoc (Wash DC) **44**(5): 562-8.

OBJECTIVE: To determine the beliefs and attitudes of pharmacists about the significance of high blood cholesterol, coronary heart disease (CHD), nonprescription statin therapy for patients at moderate risk for CHD, and their role in support of cholesterol-lowering treatments in patients. **DESIGN:** Cross-sectional survey. **SETTING:** Nationwide sample of licensed pharmacists in ambulatory practice in the United States drawn randomly from databases of the American Pharmacists Association. **PARTICIPANTS:** 104 independent pharmacists and 169 chain pharmacists. **INTERVENTION:** Web-based survey. **MAIN OUTCOME MEASURE:** Respondents' indication of strong agreement with questionnaire statements (selecting 8, 9, or 10 on a 10-point scale). **RESULTS:** The survey found that 75% and 61% of pharmacists believed strongly that CHD and high blood cholesterol levels, respectively, are significant health problems facing Americans, and 60% believed that not enough is currently being done to reduce this risk. Pharmacists indicated that they very regularly advised patients about prescription and nonprescription treatments (75%) and encouraged adherence to them (78%); a smaller but substantial proportion regularly monitored patient response to prescription (33%) and nonprescription therapies (15%) and provided point-of-care cholesterol testing (7%). The survey also revealed that the majority of pharmacists (68%) would support consumers interested in purchasing a nonprescription statin product and 82% believed such a product would be more effective than currently available cholesterol-lowering dietary supplements. Pharmacists were concerned that patients pursuing nonprescription statins might discontinue their prescription cholesterol-lowering medications (79%), experience adverse effects (79%), and not be able to self-manage their use of a nonprescription statin product (78%). **CONCLUSION:** Community pharmacist members of APhA believe that CHD and cholesterol are important problems facing many people, routinely provide services that support patients who wish to self-administer nonprescription therapies, and would be interested in supporting consumers who wish to carry out therapy with a nonprescription statin.

McLean, W., J. Gillis, et al. (2003). "The BC Community Pharmacy Asthma Study: A study of clinical, economic and holistic outcomes influenced by an asthma care protocol provided by specially trained community pharmacists in British Columbia." Can Respir J **10**(4): 195-202.

OBJECTIVES: Despite advances in recent years, asthma morbidity and mortality have been noted to be on the increase in the past decade. The present study examined the failures and recommendations of past studies and introduced a new milieu for asthma care--the community pharmacy. The study incorporated a care protocol with the important ingredients of asthma education on medications, triggers, self-monitoring and an asthma plan, with pharmacists taking

responsibility for outcomes, assessment of a patient's readiness to change and tailoring education to that readiness, compliance monitoring and physician consultation to achieve asthma prescribing guidelines. **METHODS:** Thirty-three pharmacists in British Columbia, specially trained and certified in asthma care, agreed to participate in a study in which experienced pharmacists would have asthma patients allocated to enhanced (pharmaceutical) care (EC) or usual care (UC). Pharmacists less experienced were clustered by geography and had their pharmacies randomized to two levels of care; each pharmacy then had patients randomized to EC versus control, UC versus control or EC versus UC depending on their pharmacy randomization. Six hundred thirty-one patients provided consent, of which 225 in EC or UC were analyzed for all outcomes. Patients were followed for one year. **RESULTS:** Compared with patients in the UC group, the results of those in the EC group were as follows: symptom scores decreased by 50%; peak flow readings increased by 11%; days off work or school were reduced by approximately 0.6 days/month; use of inhaled beta-agonists was reduced by 50%; overall quality of life improved by 19%, and the specific domains of activity limitations, symptoms and emotional function also improved; initial knowledge scores doubled; emergency room visits decreased by 75%; and medical visits decreased by 75%. A patient satisfaction survey revealed that the population was extremely pleased with their pharmacy services. Cost analysis reinforces the EC model, which is more cost effective than UC in terms of most direct and indirect costs in asthma patients. **CONCLUSION:** Specially trained community pharmacists in Canada, using a pharmaceutical care-based protocol, can produce impressive improvements in clinical, economic and humanistic outcome measures in asthma patients. The health care system needs to produce incentives for such care.

Meijer, W. M., D. J. De Smit, et al. (2004). "Pharmacists' role in improving awareness about folic acid: A pilot study on the process of introducing an intervention in pharmacy practice." International Journal of Pharmacy Practice **12**(1): 29-35.

Objective: To determine whether a multiple intervention programme to improve women's awareness of folic acid was feasible in community pharmacy practice; to identify adjustments in organisation and materials that could improve feasibility; and to assess how the target group would experience the intervention. **Method:** An action research study was undertaken in which four community pharmacies in the Netherlands participated. In each, a core team (one pharmacist and one to two technicians) was responsible for the organisation and implementation of the intervention. The intervention had several possible levels. As a minimum, pharmacy staff added a label about folic acid to the box of dispensed oral contraceptives (OCs) and handed out a leaflet about folic acid. The intervention was discussed during core team meetings every six weeks. Modifications were made based on the experience of the pharmacy team, on responses from pharmacy customers and on the results of a questionnaire sent to women one week after they visited the pharmacy with an OC prescription. This cycle of planning, action, observation and reflection was repeated twice. **Key findings:** The minimum intervention was carried out by all four pharmacies. Other activities differed: two pharmacies introduced a maximum client age limit for handing out the leaflet; two installed an electronic information display; three

worked with posters and window displays; and in two pharmacies the pharmacy technicians wore project badges and an information portfolio was placed in the public area of the pharmacy. Of the target group, 44% were positive about the label, 49% were neutral and 4% were negative. Over half (56%) of the target group stated that they appreciated the public health information given through the pharmacy. Conclusion: Working with core teams seemed to be a successful strategy to implement practice change. By discussing and modifying the intervention during each research cycle in the core team meetings, an optimal intervention was reached that fitted in with the existing organisation within the pharmacy and possible barriers were overcome. Feedback from the target group was mainly positive and motivated the core teams to continue.

Modrzejewski, K. A. and G. P. Provost (2003). "Pharmacists' involvement with vaccinations leads to preventive health care role." Am J Health Syst Pharm **60**(17): 1724, 1726, 1728.

Mullan, J. R., P. A. Crookes, et al. (2003). "RAIN, SMOG, FOG and Printed Educational Material." Journal of Pharmacy Practice & Research **33**(4): 284-286.

Patient education is central to the practice of all health professionals. Pharmacists often use printed educational material, such as consumer medicine information, as adjuncts to verbal communication and education of patients about their medications. A relatively large proportion of the Australian population have low literacy skills and cannot read or understand written patient educational materials which are typically written at levels equivalent to year 9 and above. By using simple readability assessment tools such as RAIN, SMOG or FOG and the UK's Department of Health 'Toolkit for producing patient information' health professionals can ensure that printed educational materials are simple and easily read by a wide patient population. These measures will ensure that pharmacists can become more effective educators to improve patients' medication knowledge and understanding, which will assist with optimising compliance and overall therapeutic outcomes.

Munzenberger, P. J. and R. Z. Vinuya (2002). "Impact of an asthma program on the quality of life of children in an urban setting." Pharmacotherapy **22**(8): 1055-62.

A comprehensive asthma program involving a pharmacist and physician evaluated quality of life (QOL) for children with asthma and the relationship between changes in QOL and traditional outcomes. The program consisted of aggressive medical management and a comprehensive education program. Children were from an inner-city population who had been referred to a specialist. Twenty of the 29 children enrolled in the program were available for 1-year follow-up. Significant improvements were seen in overall QOL scores and in each domain in the instrument, which exceeded the minimal important difference. A strong relationship was not found between changes in QOL total score and changes in asthma questionnaire score, frequency of nocturnal asthma, symptomatic days, and exercise tolerance. Further research is necessary to support these findings.

Murray, M. D., J. M. Young, et al. (2004). "Methodology of an ongoing, randomized,

controlled trial to improve drug use for elderly patients with chronic heart failure." Am J Geriatr Pharmacother **2**(1): 53-65.

BACKGROUND: Medications can improve the functioning and health-related quality of life of patients with chronic heart failure (CHF) and reduce morbidity, mortality, and costs of treatment. However, patients may not adhere to therapy. Patients with complex medication regimens and low health literacy are at risk for nonadherence. **OBJECTIVE:** The primary goal of this project is to develop and assess a multilevel pharmacy-based program to improve patient medication adherence and health outcomes for elderly CHF patients with low health literacy. **METHODS:** In this 4-year, controlled trial, patients aged 50 years with a diagnosis of CHF who are being treated at Wishard Health Services (Indianapolis, Indiana) are randomly assigned to pharmacist intervention or usual care. Intervention patients receive 9 months of pharmacist support and 3 months of postintervention follow-up. The intervention involves a pharmacist providing verbal and written education, icon-based labeling of medication containers, and therapeutic monitoring. The pharmacist identifies patients' barriers to appropriate drug use, coaches them on overcoming these barriers, and coordinates medication use issues with their primary care providers. Daily updates of relevant monitoring data are delivered via an electronic medical record system and stored in a personal computer system designed to support pharmacist monitoring and facilitate documentation of interventions. To measure medication adherence objectively, electronic monitoring lids are used on all CHF medications for patients in both study groups. Other assessments include self-reported medication adherence, results of echocardiography (eg, ejection fraction), brain natriuretic peptide concentrations, and health-related quality of life. Health services utilization, refill adherence, and cost data derive from electronic medical records. After completion of this study, the data can be used to assess the effectiveness and cost-effectiveness of our intervention. **RESULTS:** One hundred twenty-two patients have been assigned to receive the intervention and 192 to receive usual care. **CONCLUSIONS:** Our study aims to improve patients' knowledge and self-management of their medication and to improve medication monitoring in a multilevel pharmacy-based intervention. By doing so, we intend that the intervention will improve the health outcomes of elderly patients with CHF.

Nandha, D. V. (2004). "Simvastatin may pave way for public health role for pharmacists [5]." Pharmaceutical Journal **273**(7310).

Narhi, U., M. Airaksinen, et al. (2002). "Pharmacists solving problems in asthma management - Experiences from a one-year intervention programme in Finland." International Journal of Pharmacy Practice **10**(1): 55-59.

Objective - To study the effect of an intervention provided by community pharmacists on detection and resolution of problems in asthma patients' self-management and to study patients' opinions about the perceived usefulness of the pharmacists' input. **Method** - A one-year intervention study was conducted with scheduled visits and follow-ups at baseline, four, eight and 12 months. Study patients (n=28) acted as their own controls. **Setting** - Four communities and community pharmacies in different parts of Finland. **Key findings** - At study

baseline, all patients had at least one documented problem, the most commonly reported being problems with medication, side effects, problems with inhalation devices and not using asthma medicines according to the physician's instructions. On average, patients had five 'intervention' consultations with the pharmacist during the one-year study. After the intervention, half of the patients reported that their problems had been resolved. The most useful areas of advice were considered by the patients to be instructions about changing asthma medication according to asthma symptoms and management of asthma symptoms. Twenty-five of the 28 patients reported that they were satisfied with the education and counselling provided by pharmacists, a higher number than for physicians or nurses. Conclusion - The findings from this small longitudinal study indicate that community pharmacists can improve asthma patients' treatment by consultations during which they identify and address problems in self-management of asthma.

Narhi, U., M. Airaksinen, et al. (2001). "The effects of a pharmacy-based intervention on the knowledge and attitudes of asthma patients." Patient Educ Couns **43**(2): 171-7.

The effects of a pharmacy-based intervention on the knowledge and attitudes of asthma patients was studied with a small convenience sample in four Finnish community pharmacies. The intervention consisted of patient education, counselling and outcomes monitoring according to Therapeutic Outcomes Monitoring (TOM) concept. Twenty-eight patients aged 20-64 years suffering from asthma and having problems in asthma management were involved. Measurements were done at baseline, immediately after the intervention (12 months) and 1 year after the intervention (24 months) using a pre/post-test design, with the patients being their own controls. Both knowledge about and attitudes towards asthma as a disease improved significantly during the intervention. Also knowledge about medication improved significantly during the intervention, though the patients' attitudes towards the medication remained unchanged. The negative correlation between knowledge about and attitudes towards asthma (-0.35) at baseline disappeared after the intervention (0.21). There was a positive correlation between knowledge about and attitudes towards medication at 12 months (0.40, $P=0.04$) which was still significant 1 year after the intervention (0.40, $P=0.04$).

Nash, D. B. and S. A. Nash (2004). "Reclassification of simvastatin to over-the-counter status in the United Kingdom: A primary prevention strategy." American Journal of Cardiology **94**(9 SUPPL. 1).

Simvastatin (10-mg tablet) has been reclassified for sale as a pharmacy-only over-the-counter medicine in the United Kingdom. It is designed to be a primary prevention agent targeting that segment of the population having a moderate risk of coronary artery disease (CAD). The anticipated effect is a reduction of risk of a first major coronary event (nonfatal myocardial infarction or CAD death). Simvastatin is a component of the Heart Health Programme, which also addresses other modifiable risk factors such as diet, exercise, and smoking. Men ≥ 55 years of age, men aged 45 to 54 years with ≥ 1 risk factor, and women aged ≥ 55 years with ≥ 1 risk factor have a moderate (10% to 15%) 10-year risk of developing CAD. Risk factors include having a first-degree relative with a

history of early family CAD, smoking, being overweight, and South Asian ethnicity. Simvastatin 10 mg lowers low-density lipoprotein cholesterol levels by approximately 30%, with a resultant 33% reduction in risk of a major CAD event after 3 years. After the patient completes a check-box questionnaire regarding his or her medical history and other specific risk factors, the pharmacist performs a few simple physical measurements and makes a decision as to CAD risk and simvastatin eligibility. After 1 month of simvastatin therapy, cholesterol testing is highly recommended to patients, and a kit is made available that permits home blood collection and analysis at a central laboratory. (C) 2004 by Excerpta Medica, Inc.

Naunton, M., G. M. Peterson, et al. (2004). "Addressing information needs in the management of osteoporosis." Osteoporos Int **15**(6): 505; author reply 506.

Ndiaye, S. M., S. Madhavan, et al. (2003). "The use of pharmacy immunization services in rural communities." Public Health **117**(2): 88-97.

Pharmacies have been recommended as alternative sites for the delivery of immunization services, especially to medically underserved adults and children in inner cities and rural areas. Currently, 35 of 50 states in the USA have legalized the administration of vaccines by pharmacists on the basis of certain training requirements and specific protocols. Since the role of pharmacists is expected to expand, it is important to assess the factors that would enable them to improve the delivery of immunization services and the acceptance of these services by communities. It is particularly important for pharmacists to have knowledge of community circumstances and be able to respond to community needs. This case study of a pharmacy immunization programme (PIP) in rural West Virginia assessed how well pharmacists were aware of community circumstances and which community factors affected the utilization of pharmacy-delivered immunizations. Our findings suggest that although pharmacists played important roles as facilitators, hosts and motivators in PIP, they overestimated the trust placed in them by community members. The convenient locations of pharmacies and the convenient times when they offered immunization services were found to be the determining factors of mothers' decisions to take their children to these places for their vaccinations. The study concludes that as the use of pharmacies as sources of immunization is expected to continue to expand, pharmacists should take these factors into consideration when they decide to offer immunizations.

Neubauer, S. L., C. D. Evans, et al. (2004). "Pharmacists break ground at asthma camp." Canadian Pharmaceutical Journal **137**(9): 32-37.

Neuhauser, M. M., D. Wiley, et al. (2004). "Involvement of immunization-certified pharmacists with immunization activities." Ann Pharmacother **38**(2): 226-31.

BACKGROUND: Immunization certification courses allow pharmacists to directly administer vaccines to their patients. However, the demographics and level of immunization involvement of immunization-certified pharmacists compared with those noncertified are unknown. OBJECTIVE: To document the demographics, professional activities, and job satisfaction of immunization-certified pharmacists

compared with pharmacists not certified for immunization. METHODS: In a cross-sectional pilot study, immunization-certified pharmacists were compared with noncertified pharmacists via a postal-mailed questionnaire. The questionnaire consisted of demographic and practice site characteristics, involvement in immunization services, and a job satisfaction survey. RESULTS: Response rates were 48% (n = 101) and 36% (n = 158) for immunization-certified and noncertified pharmacists, respectively. Significantly more certified pharmacists were involved in immunizations (99% vs 24%; $p < 0.001$). Desire to improve the health care of the public and personal satisfaction were important factors that encouraged pharmacists to become certified to administer vaccines. Seventy-four percent of immunization-certified pharmacists directly administered the vaccines, primarily influenza (96%), pneumococcal (77%), hepatitis (55%), and diphtheria, pertussis, tetanus (19%). Adequate training, time, support from management and staff, and liability coverage were important factors that allowed pharmacists to incorporate immunizations into their practice. No significant differences in job satisfaction were observed between immunization-certified and noncertified pharmacists. CONCLUSIONS: Immunization-certified pharmacists are using their skills to administer vaccines to patients within their communities. Efforts to increase the number of these pharmacists throughout the US should be undertaken.

Newman, E. D. (2001). "Improved bone health behavior using community pharmacists as educators: Geising Health System community pharmacist osteoporosis education program." Acta Poloniae Pharmaceutica 9(6): 329-335.

The impact of a community pharmacist osteoporosis education program, a specific project of an osteoporosis disease management program, on bone health behavior was studied. Approximately 350 women (mean age 54 yr) attended the classes. One-third had a family history of osteoporosis or fracture. Participants were uniformly satisfied with the course content and class delivery: 74% rated the class as excellent, 26% as good. Follow-up questionnaires at 4-6 months demonstrated that of those who were not previously doing so, 58% began taking calcium supplements, 32% exercised more, 50% sought the counsel of their primary care physician, 29% obtained a bone density test, and 33% started a prescription medication for osteoporosis therapy as a result of attending the class. (16 refs.) (Abstract by Ellen Katz Neumann.)

Newman, E. D. and P. Hanus (2001). "Improved bone health behavior using community pharmacists as educators: The Geisinger Health System Community Pharmacist Osteoporosis Education Program." Disease Management & Health Outcomes 9(6): 329-335.

Background: Osteoporosis is an exceedingly common, morbid, and potentially fatal disease. Efforts to improve the prevention, diagnosis and treatment of osteoporosis in people living in Central Pennsylvania were instituted in 1996 by the Geisinger Health System. With a catchment of over 2 million people, over 600 physicians and 50 primary care sites, this physician-led system of healthcare is uniquely positioned to influence the delivery of healthcare. Objective: To determine whether the pilot Community Pharmacist Osteoporosis Education Program, a specific project of the osteoporosis disease management program by

the Geisinger Health System, improved bone health behavior. Methods: The Community Pharmacist Osteoporosis Education Program, focused on physician and allied healthcare provider guidelines, community intervention, bone density testing, and outcomes analysis, can improve bone health. A group of highly motivated community-based pharmacists were educated about menopause and osteoporosis prevention, diagnosis, and treatment. They were provided with a uniform educational program and held classes in the community. Baseline, satisfaction, and follow-up questionnaires were administered. High risk participants received a follow-up telephone encounter. Primary care physicians were notified about the program and their patients' participation. Results: Approximately 350 women attended the classes. The mean age was 54 years, 99.4% were Caucasian, and 47% had some education beyond high school. One-third had a family history of osteoporosis or fracture. Participants were uniformly satisfied with the course content and class delivery: 74% rated the class as 'excellent', 26% as 'good'. Follow-up questionnaires at 4 to 6 months demonstrated that of those who were not previously doing so, 58% began taking calcium supplements, 32% exercised more, 50% sought the counsel of their primary care physician, 29% obtained a test of bone density, and 33% started a prescription medication for osteoporosis therapy as a result of attending the class. High risk participants were more likely to obtain a test of bone density after the program than were low risk participants. Conclusion: This program demonstrates that community-based pharmacists can serve as a valuable member of the healthcare provider team. An organized program that provides a standard and consistent educational approach, physician communication, and a reminder system led to better bone health behavior in women in the community.

Nichols-English, G. J., M. Provost, et al. (2002). "Strategies for pharmacists in the implementation of diabetes mellitus management programs: New roles in primary and collaborative care." Disease Management & Health Outcomes 10(12): 783-803.

Pharmacists are in an ideal position to assess, monitor and treat adherence-related problems that can adversely affect patients' health outcomes. To accomplish these goals, pharmacists must accept the responsibilities and challenges of a primary care provider. They also must assume an interdisciplinary role in collaborative drug therapy management. Strategies to monitor and improve adherence are key components of pharmaceutical care plans, especially for patients with chronic diseases, such as hypertension, diabetes mellitus and atherosclerotic heart disease. This article gives an overview of guidelines, recommendations, current practices and related issues in the management of patients with diabetes mellitus. It also reviews the behavioral and social factors that influence adherence to therapeutic and lifestyle regimens, and highlights special needs in selected high-risk populations. Finally, best practice strategies that could serve as appropriate models for pharmaceutical care services are discussed. The overall goal is to enhance pharmacists' professional abilities to coordinate pharmaceutical care services targeted for major modifiable behavioral and biological risk factors. Pharmacists can overcome their apprehension about undertaking a primary care role in diabetes management through adequate preparation (including training and certification). The primary care functions that have been evaluated to date in the care of

patients with diabetes mellitus by pharmacists show successful patient outcomes in terms of cost, quality of life and reduction of complications.

Ohlsen, S. and D. Rogers (2004). "Providing a lipid measuring service." Pharmaceutical Journal **273**(7308): 86-87.

Considering the new general medical services contract (where GPs are rewarded for meeting targets and are able to subcontract services to other providers, such as pharmacies or pharmacists) and the future pharmacy contract, a cholesterol measuring service could well be offered to primary care organisations. An excellent example of a successful lifestyle project, which included a full blood lipid and glucose profile, and assessments of blood pressure, height, weight, smoking status, diet, alcohol consumption and degree of physical activity is that started in Neyland Pharmacy in Pembrokeshire (PJ, 8 May, p572). Funding came from the local health board's pot for targeting areas with high rates of CHD ('inequalities in health' budgets). Pharmacists are uniquely placed to improve the health of the nation by providing tests and advice. They should be aware that other health care professionals are also looking to provide these kinds of service. It would be a pity if pharmacists miss out.

Paige, J. B. (2003). "Pharmacists should become specialists [4]." Pharmaceutical Journal **270**(7234).

Patel, H. (2002). "Wake up! community pharmacy could be on a path to oblivion, unless we take action now." Pharmaceutical Journal **269**(7224).

The National Health Services's new planning framework provides opportunities for community pharmacy, but only if pharmacists do something about it now, warns Hemant Patel.

Patel, H. (2002). "New initiatives: What a new contract for community pharmacy should include." Pharmaceutical Journal **268**(7182).

Pedersen, C. A. and P. J. Schneider (2001). "Vital signs of quality: medication-use safety." Am J Health Syst Pharm **58**(23): 2249.

Pedersen, C. A., P. J. Schneider, et al. (2004). "ASHP national survey of pharmacy practice in hospital settings: monitoring and patient education--2003." Am J Health Syst Pharm **61**(5): 457-71.

PURPOSE: Results of the 2003 ASHP national survey of pharmacy practice in hospital settings that pertain to monitoring and patient education are presented. METHODS: A stratified random sample of pharmacy directors at 1173 general and children's medical-surgical hospitals in the United States was surveyed by mail. SMG Marketing Group, Inc., supplied data on hospital characteristics; the survey sample was drawn from SMG's hospital database. RESULTS: The response rate was 47.1%. Virtually all hospitals (95.3%) had pharmacists regularly monitoring medication therapy in some capacity. Patient monitoring has improved since 2000; fewer respondents reported monitoring less than 25% of patients in the hospital, and most hospitals reported an increase in the amount of time pharmacists devoted to monitoring activities. Pharmacists were provided

computer access to laboratory information in 78% of hospitals to facilitate this function. Detection and reporting of adverse drug events (ADEs) have substantially increased since 1999, with an increase of 42% in events reported internally. Strategies to improve ADE reporting were in place in 84% of hospitals, indicating that pharmacists are adopting the widely recommended philosophy of learning from errors. Errors were less widely reported externally, limiting the value of aggregated data for improving the medication-use process. Most hospitals (85.5%) had an interprofessional infrastructure in place to discuss and learn from voluntary reports of ADEs. Medication counseling continued to be relatively infrequent, with nearly three fourths of hospitals reporting fewer than 26% of inpatients received medication education. Pharmacist staffing in hospitals has risen significantly, from an average of 8.6 full-time equivalents (FTEs) in 2002 to 9.4 FTEs per hospital. Vacancy rates for pharmacists decreased from 7.3% in 2002 to 43%. It is now estimated that there are 1846 vacancies in hospital pharmacies. CONCLUSION: Notable improvements in hospital pharmacy practice have been made. The percentage of patients whose medication therapy is monitored by pharmacists has increased, and most hospitals reported that the amount of time pharmacists spent monitoring patients' medication therapy had increased. Internal and external reporting of ADEs has increased, and pharmacist vacancies have decreased from 2002. Staffing has also improved, suggesting an abatement of the critical shortage of pharmacists in the hospital setting.

Penna, P. (2003). "Where Have We Been? How Have We Done?" Managed Care Interface **16**(11): 15-16.

Looking back over the last 30 years, what have been the most important contributions of managed care pharmacy to patient care and to making prescription drugs available, accessible, and affordable for health plan members? Based on his experience, Dr. Penna shares some important observations.

Peremans, L., V. Verhoeven, et al. (2003). "Screening for Chlamydia trachomatis in the pharmacy?" Contraception **67**(6): 491; author reply 492.

Peterson, G. M., K. D. Fitzmaurice, et al. (2004). "Impact of pharmacist-conducted home visits on the outcomes of lipid-lowering drug therapy." J Clin Pharm Ther **29**(1): 23-30.

OBJECTIVE: To evaluate a pharmacist-conducted educational and monitoring programme, designed to promote dietary and lifestyle modification and compliance with lipid-lowering drug therapy, for patients with dyslipidaemia.

METHODS: This was a prospective, randomized, controlled study. The participants were 94 adults, with 81 completing the study (intervention group: 39; control group: 42), with a cardiovascular-related diagnosis and discharged from hospital, between April and October 2001, on lipid-lowering drug therapy. Patients in the intervention group were visited at home monthly by a pharmacist, who educated the patients on the goals of lipid-lowering treatment and the importance of lifestyle issues in dyslipidaemia and compliance with therapy, assessed patients for drug-related problems, and measured total blood cholesterol levels using point-of-care testing. Patients in the control group

received standard medical care. The main outcome measure was total blood cholesterol levels after 6 months, and an evaluation of patient and general practitioner satisfaction with the programme. RESULTS: There was no significant difference in baseline total blood cholesterol levels between the two groups. The reduction over the course of the study in cholesterol levels within the intervention group was statistically significant (4.9 ± 0.7 to 4.4 ± 0.6 , $P < 0.005$), whereas there was no change within the control group ($P = 0.26$). At follow-up, 44% of the intervention group patients and 24% of the control group patients had cholesterol levels below 4.0 mmol/L ($P = 0.06$). The reduction in total cholesterol in the intervention group should translate to an expected 21% reduction in cardiovascular mortality risk and a 16% reduction in total mortality risk--more than twice the risk reduction achieved in the control group. In addition, the programme was very well received by the patients and their general practitioners, by satisfaction questionnaire. CONCLUSION: A pharmacist-conducted educational and monitoring intervention improved the outcomes of lipid-lowering drug therapy.

Pfleger, D. and S. Pfleger (2003). "Pharmaceutical public health - The future." Pharmacy in Practice **13**(4): 121-128.

This series of articles has focussed on aspects of pharmaceutical public health that impact on pharmacy practice, including health needs assessment, health promotion, management of medicines and harm minimisation. This final article in the series aims to point to the future direction for pharmaceutical public health in the UK.

Pike, H. (2004). "Choosing health - How pharmacists can help improve the public's health." Pharmaceutical Journal **273**(7326): 739-740.

Pike, H. (2004). "Pharmacists' role in the Children's NSF." Pharmaceutical Journal **273**(7318): 413-414.

Pilnick, A. (2003). "'Patient counselling' by pharmacists: four approaches to the delivery of counselling sequences and their interactional reception." Soc Sci Med **56**(4): 835-49.

'Patient counselling' by pharmacists is a diverse and ill-defined activity. It is also an activity which is achieving more prominence as part of the 'extended role' which is seen as the way forward for the profession. This paper uses data from a hospital paediatric outpatient clinic in the United Kingdom to examine the process of patient counselling from a conversation analytic standpoint, with a particular focus on the varying ways in which these sequences are set up and the ways in which patients or carers respond. Four types of interactional approach to negotiating entry into a broadly defined 'patient counselling' sequence are identified. These approaches are considered within the broader frameworks of delicacy, morality and competence which impact upon the giving and receiving of advice and information more generally, as well as in this setting, and in the light of the continued development of the 'extended role'.

Pizzi, L. T., J. M. Menz, et al. (2001). "From product dispensing to patient care: The role of the pharmacist in providing pharmaceutical care as part of an integrated disease

management approach." Disease Management 4(4): 143-154.

During the past decade, the profession of pharmacy has changed dramatically. The Doctor of Pharmacy degree has replaced the Bachelor of Science degree as the first professional degree offered at most accredited U.S. pharmacy schools. Advanced clinical training is now a mainstay of pharmacy training, and this has enabled pharmacists to contribute to disease management efforts. In addition, technological improvements in prescription processing have afforded pharmacists more time to participate in disease management activities. This paper describes how the role of the pharmacist has changed and reviews the results of programs involving pharmacists as disease management providers in the areas of asthma, hypertension, diabetes, and hyperlipidemia. Pharmacists' contributions in various practice settings are also discussed.

Postma, M. J., J. Londeman, et al. (2002). "Cost-effectiveness of periconceptional supplementation of folic acid." Pharmacy World & Science 24(1): 8-11.

Background: Supplementation of folic acid prior to and in the beginning of pregnancy may prevent neural tube defects (NTDs) in newborns- such as spina bifida- and possibly other congenital malformations. Objective: To estimate cost effectiveness of periconceptional supplementation of folic acid using pharmacoeconomic model calculation. Method: Probabilities for NTDs, risk reductions through periconceptional supplementation of folic acid and lifetime costs of care for children with spina bifida were estimated using Dutch registrations and international literature. Main outcome measure: Cost effectiveness was expressed in net costs per discounted life-year gained. Cost effectiveness was calculated in the baseline and in sensitivity analysis. Results: Estimated cost effectiveness of periconceptional supplementation of folic acid amounts to NLG 3900([epsilon]1800) in the base case. In sensitivity analysis cost effectiveness mostly remains below NLG 10.000([epsilon]4500). Conclusion: Periconceptional supplementation of folic acid shows a favorable cost effectiveness. From pharmaco-economic point of view this justifies further stimulation of folic-acid supplementation prior to pregnancy. This can be done through targeted education by health-care workers, such as pharmacists.

Prokhorov, A. V., K. S. Hudmon, et al. (2003). "Adolescent smoking: Epidemiology and approaches for achieving cessation." Paediatric Drugs 5(1): 1-10.

The initiation of smoking typically occurs during adolescence. To date, most adolescent smoking control efforts have focused on prevention; attempting to identify and influence factors that contribute to experimentation and initiation. However, given the large number of adolescent smokers, it is important that effort also be directed toward facilitating cessation. Many adolescents are addicted to cigarettes and report withdrawal symptoms that are similar to those experienced by adults. Relapse rates are high; few adolescents who try to quit on their own are successful. Clinician-delivered smoking cessation interventions have a positive impact in adults and should be applied to adolescents to promote and sustain abstinence. Although pharmaceutical aids for cessation have been shown to be well tolerated and effective in adults, less is known about their use in adolescents. As such, clinicians are encouraged to explore whether pharmaceutical aids have been approved for use in adolescents in their country

and to use discretion when considering their use in patients <18 years of age. Because pediatricians are in a unique position to facilitate tobacco cessation counseling, they should routinely ask their patients whether they use tobacco, advise users to quit, assess readiness to quit, assist with quitting, and arrange follow-up counseling. Tobacco cessation efforts can be enhanced by teaming with other health professionals (e.g. nurses, dentists, pharmacists, social workers) or worksite and community-based organizations that provide health promotion services.

Pronk, M., L. Blom, et al. (2002). "Community pharmacy and patient-oriented activities: the Dutch case." Patient Educ Couns **46**(1): 39-45.

This article reviews the implementation of patient education as a new task in Dutch Community pharmacy. A search of the literature, including 'grey' (not-scientific) literature was done to find indications for the implementation of patient education. The little data available show that patient education activities are not carried out as a routine task and are therefore not implemented, despite the development of interventions on educational and pharmacy practice level. In addition, barriers were found that relate to the organisation of patient education. More sound research is necessary on criteria for implementation, on the level and amount of communication with clients and on the experienced barriers for organising and practising patient education. The opportunities for designing an intervention on the organisational level should be assessed.

Pronk, M. C., A. T. Blom, et al. (2001). "The diffusion process of patient education in Dutch community pharmacy: an exploration." Patient Educ Couns **42**(2): 115-21.

Patient education activities in pharmacies are receiving much attention. These activities are relatively new and implementation requires individual and organisational change in pharmacies. The aim of this study is to identify barriers and facilitators to the implementation of patient education in community pharmacies and to classify these barriers and facilitators into the diffusion stages of Rogers' 'Innovations in Organisations' model [Rogers, EM. Diffusion of innovations. 4th ed. New York: The Free Press, 1995]. Six focus group interviews, three with pharmacists and three with pharmacy technicians (total n = 38) were carried out. The initiation phase has been dealt with by community pharmacies, whereas the implementation phase has not. The barriers and facilitators in the redefining/restructuring stage were mainly related to the organisation of patient education. In the clarifying and routinizing stages, barriers were related to repetition and knowledge transfer. The facilitators in these stages relate to performing and talking about patient education. Interventions for implementation of patient education should aim at these barriers and facilitating factors.

Pronk, M. C., L. T. Blom, et al. (2002). "Patient oriented activities in Dutch community pharmacy: diffusion of innovations." Pharm World Sci **24**(4): 154-61.

OBJECTIVES: To explore the implementation of patient oriented activities, the perception of an innovation aimed at implementation of patient education and the preconditions for implementation of this innovation among Dutch pharmacists. METHOD: A survey, based on Roger's theory of diffusion of innovations, was

carried out among a random sample ($n = 300$) of Dutch managing pharmacists. MAIN OUTCOME MEASURES: Reported activities regarding patient education, medication surveillance and drug therapy meetings, as well as perception of the innovation and its perceived compatibility with pharmacy practice. RESULTS: The response rate was 49.3%. Hundred (84.7%) respondents reported to provide extra written and verbal information with first prescription medication. Medication surveillance (100% check by computer, and check of the lists by the pharmacist) was reported by 43 (36.4%), and complete participation in drug therapy meetings was reported by 57 (48.3%) respondents. Observability (or results to others) of the new strategy was perceived as important by 90 (77.6%), compatibility (perceived consistency with existing values, past experiences and needs of potential adopters) by 87 (76.4%) and trialability (degree to which an innovation may be experimented with) by 81 (69.8%) respondents. Relative advantages (perception of the innovation as being better) and complexity (relatively difficult to understand and use) of the innovation were perceived as important by less respondents. The preconditions that were met by most pharmacists were 'financial resources' ($n = 70$; 59.8%), 'enough workspace' ($n = 61$; 53.1%) and 'enough time' ($n = 58$; 50%). Fifty-eight (49.2%) respondents intend to adopt the innovation, but this intention would be higher when more time and money and technicians are available, as well as less situations that are experienced as barriers (rush hours, lack of support, illness of employees). CONCLUSION: Based on the definitions used, we conclude that the implementation of medication surveillance and drug therapy meetings is relatively low compared to patient education. The development of an implementation tool is justified, but should deal with the experienced preconditions, barriers and needs of pharmacists. Combined, comprehensive pharmacy interventions promise to be a good way to change pharmacy practice.

Rajamaki, H., N. Katajavuori, et al. (2003). "The smokers' perception of health care personnel advice to quit smoking." Journal of Social & Administrative Pharmacy **20**(2): 64-71.

Objective: The aim of this study was to evaluate the baseline situation concerning citizens' smoking and the perception of health care personnel activity in the promotion of non-smoking in three Finnish communities. Method: A postal questionnaire ($n=1800$) was carried out in 1999. The characteristics of subjects, smoking status and history were collected. Daily and former cigarette smokers were categorized into one of five stages of change. Exposure to the advice of health care personnel as well as various citizens' information sources concerning smoking was recorded. Key findings: Most daily smokers were in the pre-contemplation stage. Most of the respondents wanted to quit but only 21-30% wanted to quit within the next 12 months. Furthermore, compared to other health care personnel, dentists and pharmacists had advised less people to quit. Conclusions: It seems that health care personnel do not fully utilize their good opportunity to assist smokers to quit. Smoking cessation work should be integrated into routine care. The promotion of non-smoking might improve if co-operation among all health care personnel was better organized.

Ralph, S. G., A. Preston, et al. (2001). "Over-the-counter advice for genital problems:

the role of the community pharmacist." Int J STD AIDS **12**(8): 513-5.

This year, in the UK, levonorgestrel was approved for sale in pharmacies for emergency contraception. This study assessed, using a postal questionnaire, the ability of community pharmacists to provide advice relating to sexual health, their comfort and training in this area, and their knowledge of local genitourinary medicine (GUM) services. Fifty-four per cent of pharmacists responded. Most (79%) did not know where their nearest GUM department was; only 21% had ever advised a patient to attend a GUM clinic. Twenty-nine per cent said they were not able to broach the possibility of a sexually transmitted infection (STI) with a patient of both sexes. Forty-four per cent had received training related to post-coital contraception. Greater liaison between GUM departments and community pharmacists is suggested as a way of increasing the proportion of patients presenting to a pharmacist who are referred appropriately to a GUM clinic.

Ravnan, S. L., M. C. Ravnan, et al. (2002). "Developing and implementing a pharmacist-managed, telephone-based *Helicobacter pylori* clinic." Am J Health Syst Pharm **59**(8): 725-7.

Reeves, S. and C. F. Steil (2004). "Evolution of diabetes self-management programs." Drug Benefit Trends **16**(SUPPL. E): 11-16.

Diabetes is a growing problem, affecting an estimated 18.2 million Americans, or about 6.3% of the US population. Results of landmark studies have shown that intensive control of blood glucose levels to within normal range can slow the onset and progression of diabetes-related complications. The development of blood glucose meters that are simple to use, combined with disease-management programs that include training in diabetes self-management and coordination with other health care providers, can help persons with diabetes control their blood glucose levels and improve clinical outcomes. Many diabetes management programs are offered through community pharmacies, often run by pharmacists who are certified diabetes educators.

Rijcken, C. A. W., J. A. M. Dekens-Konter, et al. (2001). "Reporting sexual function disorders caused by antipsychotic drugs: Is there a role for the community pharmacy?" Pharmacy World & Science **23**(5): 169-172.

Sexual function disorders are frequent adverse effects of antipsychotic use. These effects can lead to non-compliance to medication, which dramatically worsen the outcome of the psychotic disease. Detecting sexual dysfunction by the carers may be difficult, since feelings of embarrassment may occur in both care-taker as in patient. In order to prevent underreporting, strategies to recognise sexual dysfunction should be developed, based upon collaboration between care providers of the psychotic patient. Community pharmacies in many countries can detect non-compliance to medication in prescription data and report this to psychiatric services of the patient. Exchanging information by crosssectoral networks may optimise the disease management of the psychotic patient.

Rodis, J. L., C. G. Green, et al. (2004). "Effects of a pharmacist-initiated educational

intervention on patient knowledge about the appropriate use of antibiotics." Am J Health Syst Pharm **61**(13): 1385-9.

Roe, K. K., J. A. Dopheide, et al. (2002). "Developing a partnership with NAMI and psychiatric pharmacists." Schizophr Bull **28**(3): 525-9.

NAMI is a grassroots advocacy organization dedicated to improving the lives of people with severe mental illness. We conducted a survey of 8 local Southern California NAMI chapters and found the membership to be predominantly female (70%) and elderly (mean age = 61 years). The majority of respondents (92%) rated information on psychiatric medications as very important, and 79 percent reported needing more information on psychiatric medications. A second survey of psychiatric pharmacists nationwide revealed that 80 percent have heard of NAMI but only 17 percent are members of NAMI. Psychiatric pharmacists have expertise in psychopharmacology, and more than 50 percent have achieved board certification in psychiatric pharmacy (BCPP). A partnership between NAMI and psychiatric pharmacists can result in education of NAMI members about psychiatric medications. Furthermore, psychiatric pharmacists can become aware of issues that are pertinent to the experience of NAMI members.

Rothman, R., R. Malone, et al. (2004). "The relationship between literacy and glycemic control in a diabetes disease-management program." Diabetes Educ **30**(2): 263-73.

PURPOSE: This study examined the role of literacy in patients with poorly controlled diabetes who were participating in a diabetes management program that included low-literacy-oriented interventions. METHODS: A before-after analysis was performed of a pharmacist-led diabetes management program for 159 patients with type 2 diabetes and poor glycemic control (hemoglobin A1c [A1C] \geq 8.0%). Clinic-based pharmacists offered one-to-one education and medication management for these patients using techniques that did not require high literacy. Literacy was measured by the Rapid Estimate of Adult Literacy in Medicine (REALM) test and dichotomized at the 6th-grade level. The A1C values were collected prior to enrollment, at enrollment, and approximately 6 months after enrollment. RESULTS: Of the 111 patients with follow-up data, 55% had literacy levels at the 6th-grade level or below. Lower literacy was more common among African Americans, older patients, and patients who required medication assistance. There was no significant relationship between literacy status and A1C prior to enrollment or at enrollment. Over the 6-month study period, patients with low and high literacy had similar improvements in A1C. CONCLUSIONS: This diabetes care program, which used individualized teaching with low-literacy techniques, significantly improved A1C values independent of literacy status.

Rothman, R., R. Malone, et al. (2003). "Pharmacist-led, primary care-based disease management improves hemoglobin A1c in high-risk patients with diabetes." Am J Med Qual **18**(2): 51-8.

We developed and evaluated a comprehensive pharmacist-led, primary care-based diabetes disease management program for patients with Type 2 diabetes and poor glucose control at our academic general internal medicine practice. The primary goal of this program was to improve glucose control, as measured by hemoglobin A1c (HbA1c). Clinic-based pharmacists offered support to patients

with diabetes through direct teaching about diabetes, frequent phone follow-up, medication algorithms, and use of a database that tracked patient outcomes and actively identified opportunities to improve care. From September 1999, to May 2000, 159 subjects were enrolled, and complete follow-up data were available for 138 (87%) patients. Baseline HbA1c averaged 10.8%, and after an average of 6 months of intervention, the mean reduction in HbA1c was 1.9 percentage points (95% confidence interval, 1.5-2.3). In predictive regression modeling, baseline HbA1c and new onset diabetes were associated with significant improvements in HbA1c. Age, race, gender, educational level, and provider status were not significant predictors of improvement. In conclusion, a pharmacist-based diabetes care program integrated into primary care practice significantly reduced HbA1c among patients with diabetes and poor glucose control.

Rothman, R. L., R. Malone, et al. (2005). "A randomized trial of a primary care-based disease management program to improve cardiovascular risk factors and glycated hemoglobin levels in patients with diabetes." American Journal of Medicine **118**(3): 276-284.

PURPOSE: To assess the efficacy of a pharmacist-led, primary care-based, disease management program to improve cardiovascular risk factors and glycated hemoglobin (A<inf>1C</inf>) levels in vulnerable patients with poorly controlled diabetes. **METHODS:** A randomized controlled trial of 217 patients with type 2 diabetes and poor glycemic control (A<inf>1C</inf> level $\geq 8.0\%$) was conducted at an academic general medicine practice from February 2001 to April 2003. Intervention patients received intensive management from clinical pharmacists, as well as from a diabetes care coordinator who provided diabetes education, applied algorithms for managing glucose control and decreasing cardiovascular risk factors, and addressed barriers to care. Control patients received a one-time management session from a pharmacist followed by usual care from their primary care provider. Outcomes were recorded at baseline and at 6 and 12 months. Primary outcomes included blood pressure, A<inf>1C</inf> level, cholesterol level, and aspirin use. Secondary outcomes included diabetes knowledge, satisfaction, use of clinical services, and adverse events. **RESULTS:** For the 194 patients (89%) with 12-month data, the intervention group had significantly greater improvement than did the control group for systolic blood pressure (-9 mm Hg; 95% confidence interval [CI]: -16 to -3 mm Hg) and A<inf>1C</inf> level (-0.8%; 95% CI: -1.7% to 0%). Change in total cholesterol level was not significant. At 12 months, aspirin use was 91% in the intervention group versus 58% among controls ($P < 0.0001$). Intervention patients had greater improvements in diabetes knowledge and satisfaction than did control patients. There were no significant differences in use of clinical services or adverse events. **CONCLUSION:** Our comprehensive disease management program reduced cardiovascular risk factors and A<inf>1C</inf> levels among vulnerable patients with type 2 diabetes and poor glycemic control. (C) 2005 Elsevier Inc. All rights reserved.

Sarkadi, A. and U. Rosenqvist (2004). "Experience-based group education in Type 2 diabetes: a randomised controlled trial." Patient Educ Couns **53**(3): 291-8.

Few studies have demonstrated an effect of educational interventions on

glycaemic control in persons with Type 2 diabetes longer than 3-6 months after baseline. We aimed to investigate the effectiveness of an experience-based group educational programme 24 months after baseline and to pinpoint mediators that might play a role in achieving desired metabolic outcomes. We conducted a randomised controlled trial inviting self-referred persons with Type 2 diabetes (N=77 randomised). The pharmacist-led, year-long intervention was based on participants' experiences of glucose regulation during the monthly group discussions. We measured HbA1c at 0, 6, 12, and 24 months and a questionnaire was administered at baseline and final follow-up. Our findings indicated that participating in the intervention programme significantly decreased HbA1c by 0.4% at 24 months after baseline. Initial HbA1c, satisfaction with own diabetes-related knowledge, and treatment were found directly related to glycaemic outcomes. The intervention group exercised more in order to lower blood-glucose levels and was also more able to predict current blood-glucose levels before measuring it. Experience-based group education was effective in decreasing participants' HbA1c 1-year after completed intervention. Early effect of the intervention was followed by relapse after 12 months and a new, significant decrease at 24 months; this dual course implies that follow-up of educational interventions should involve several consecutive measurements to capture possible late effects. Both biomedical and subjective factors played a role in accounting for the variance of HbA1c at 2-year follow-up after baseline.

Schultz, C. H., J. L. Mothershead, et al. (2002). "Bioterrorism preparedness I: The emergency department and hospital." Emergency Medicine Clinics of North America **20** (2): 437-455.

Fundamental precepts in hospital-based planning for bioterrorist events include having a comprehensive well-rehearsed disaster plan that is based on a threat and vulnerability analysis. JCAHO Environment of Care Standards and an 'all-hazards' approach to disaster planning and management form the basis for a solid bioterrorism response plan. During preparation, education and training are imperative. Clinicians must maintain a high index of suspicion for use of bioterrorism agents, be able to make a rapid diagnosis, and promptly initiate empiric treatment. Other personnel from administration, security, public relations, laboratory, pharmacy, and facilities management should be familiar with the plan, know when and how to activate it, and understand their roles in the response. A recognized incident command system should be used. Hospital leadership must be aware of the facility's capabilities and capacities, and should have plans for expansion of services to meet the surge in demand. The command center should coordinate emergency personnel teams, decontamination, security, acquisition of supplies, and notification of public health and other authorities and the media. If the plan is ever implemented, stress management with psychologic support will play an important role in recovery.

Schulz, M., F. Verheyen, et al. (2001). "Pharmaceutical care services for asthma patients: a controlled intervention study." J Clin Pharmacol **41**(6): 668-76.

As asthma is associated with an enormous social, psychological, and economic burden, various patient education programs have been developed to improve outcomes, including quality of life. The authors evaluated the effectiveness of

community pharmacy-based interventions on lung function, health-related quality of life, and self-management in asthma patients in a 12-month controlled intervention study in 26 intervention and 22 control pharmacies. Pharmacies opted whether to take part as intervention or control pharmacies. According to this, patients (ages 18-65) with mild to severe asthma attending the pharmacies were allocated to the intervention (n = 161) or control group (n = 81), respectively. Intervention patients were educated on their disease, pharmacotherapy, and self-management; inhalation technique was assessed and, if necessary, corrected. Pharmaceutical care led to significantly improved inhalation technique. Asthma-specific quality of life and the mental health summary score of the SF-36 improved significantly in the intervention group. At 12 months, the intervention group showed significant improvements with regard to evening peak flow, self-efficacy, and knowledge.

Schumock, G. T., M. G. Butler, et al. (2003). "Evidence of the economic benefit of clinical pharmacy services: 1996-2000." Pharmacotherapy **23**(1): 113-132.

We sought to summarize and assess original evaluations of the economic impact of clinical pharmacy services published from 1996-2000, and to provide recommendations and methodologic considerations for future research. A systematic literature search was conducted to identify articles that were then blinded and randomly assigned to reviewers who confirmed inclusion and abstracted key information. Results were compared with those of a similar review of literature published from 1988-1995. In the 59 included articles, the studies were conducted across a variety of practice sites that consisted of hospitals (52%), community pharmacies and clinics (41%), health maintenance organizations (3%), and long-term or intermediate care facilities (3%). They focused on a broad range of clinical pharmacy services such as general pharmacotherapeutic monitoring (47%), target drug programs (20%), disease management programs (10%), and patient education or cognitive services (10%). Compared with the studies of the previous review, a greater proportion of evaluations were conducted in community pharmacies or clinics, and the types of services evaluated tended to be more comprehensive rather than specialized. Articles were categorized by type of evaluation: 36% were considered outcome analyses, 24% full economic analyses, 17% outcome descriptions, 15% cost and outcome descriptions, and 8% cost analyses. Compared with the studies of the previous review, a greater proportion of studies in the current review used more rigorous study designs. Most studies reported positive financial benefits of the clinical pharmacy service evaluated. In 16 studies, a benefit:cost ratio was reported by the authors or was able to be calculated by the reviewers (these ranged from 1.7:1-17.0:1, median 4.68:1). The body of literature from this 5-year period provides continued evidence of the economic benefit of clinical pharmacy services. Although the quality of study design has improved, whenever possible, future evaluations of this type should incorporate methodologies that will further enhance the strength of evidence of this literature and the conclusions that may be drawn from it.

Seal, R. (2004). "Collaboration is the key to better medicines management." Hospital Pharmacist **11**(5).

Semchuk, R. (2003). "A collaborative approach to diabetes management." Canadian Pharmaceutical Journal **136**(6).

Two Calgary pharmacists offer the full scope of diabetes care in a community pharmacy.

Sheridan, J., T. Carson, et al. (2003). "Providing dental health services to drug users: Testing a model for a community pharmacy advice and referral scheme." Pharmaceutical Journal **271**(7261): 180-182.

Aim * To investigate a model of health promotion with regard to increasing drug users' access to dental health services. To compare referral rates between drug users and non drug users. Design * Drug users and non drug users attending community pharmacies had their dental health reviewed by pharmacists and were referred if necessary for dental treatment. An audit trail was set up to monitor uptake of treatment by drug users. Satisfaction with service was measured using a self-completion questionnaire. Subjects and Settings * 125 drug users accessing methadone dispensing services or sterile needles and syringes, and 129 non drug users accessing prescription dispensing services or health care advice services in community pharmacies. Outcome Measures * Referrals for treatments; uptake or referrals satisfaction. Results * For drug user, 44 (36.1%) were referred to a dentist participating in the project, of whom 13.6% made an appointment. Only 27 (22.1%) did not require a referral, the remainder being referred to their own dentist or refusing treatment. With regard to non drug users, 63.8% did not require a referral to a dentist. Satisfaction with service was high. Conclusions * Differences in need for referrals were noted between the two groups, with drug users in greater need of referral. The number of drug users making appointments to see a dentist in the study was small, but not unexpected considering drug users' fear of dental treatment and prior experiences of stigmatisation. This study shows that this model of health promotion can work in community pharmacy setting and could be extended to other groups of patients.

Sias, J. J. and M. S. Bennett (2001). "A reimbursable education service for patients with hepatitis C." J Am Pharm Assoc (Wash) **41**(3): 448-53.

OBJECTIVE: To describe a pharmacy's subcutaneous injection education service for patients with hepatitis C. PRACTICE PROBLEM: Obstacles identified in the delivery of the service included the need to increase the pharmacists' level of knowledge regarding hepatitis C, establish methods for consistent education and documentation of patient education sessions, and improve coordination of scheduling appointments, pharmacy workflow, and obtaining documentation from physicians for reimbursement. PRACTICE INNOVATION: In this pharmacist-coordinated hepatitis C education service, policies and procedures were developed and implemented to ensure uniform standards of patient care and to improve pharmacists' knowledge base, patient education, and documentation of services. A one-page, faxable treatment order form was designed to help streamline physician office documentation and workflow. A task flow sheet for each patient case was used to address additional scheduling and workflow issues. Third party payers were billed for every teaching session. RESULTS: After evaluating the service and implementing several improvements,

coordination of patient care became more streamlined. From March 1997 through February 2000, 94 patients received care, with appointments lasting between 45 and 90 minutes. Reimbursement was obtained from third party payers for 19% (18/94) of the teaching sessions. When claims were rejected, patients were billed for the education service. CONCLUSION: Pharmacists have an opportunity to provide a reimbursable education service to patients with hepatitis C.

Simpson, S. H., J. A. Johnson, et al. (2004). "Greater effect of enhanced pharmacist care on cholesterol management in patients with diabetes mellitus: a planned subgroup analysis of the Study of Cardiovascular Risk Intervention by Pharmacists (SCRIP)." Pharmacotherapy **24**(3): 389-94.

STUDY OBJECTIVE: To determine the effect of enhanced pharmacist care on cholesterol management in patients with and without diabetes mellitus. METHODS: We conducted a planned subgroup analysis of the Study of Cardiovascular Risk Intervention by Pharmacists (SCRIP), a 54-center randomized trial of pharmacist intervention compared with usual care in patients at high risk for cardiovascular events. The patients involved had atherosclerotic disease or diabetes. We compared the effect of pharmacist intervention in patients with and without diabetes. The primary end point was a composite of performing a fasting cholesterol profile, or adding or increasing the dosage of a cholesterol-lowering drug. Secondary end points were individual components of the primary end point and change in 10-year risk for cardiovascular events, using the Framingham risk equation. RESULTS: Of the 675 patients enrolled in the SCRIP study, 294 (44%) had diabetes. Enhanced pharmacist care had a more beneficial effect on cholesterol management in those with diabetes (odds ratio [OR] 4.8) than without diabetes (OR 2.1), $p=0.01$. Secondary end points showed similar trends, and reduction in Framingham risk was greater in patients with diabetes than without. CONCLUSION: Pharmacist intervention for dyslipidemia appears to have a greater impact in patients with diabetes. Results of this substudy suggest that pharmacists should target this patient group for interventions in cholesterol risk management.

Sinclair, H. K., C. M. Bond, et al. (2004). "Community pharmacy personnel interventions for smoking cessation." Cochrane Database Syst Rev(1): CD003698.

BACKGROUND: Smoking cessation is a potentially appropriate role for community pharmacists because they are encouraged to advise on the correct use of nicotine replacement therapy (NRT) products and to provide behavioural support to aid smoking cessation. OBJECTIVES: This review assessed the effectiveness of interventions by community pharmacy personnel to assist clients to stop smoking. SEARCH STRATEGY: A search was made of the Cochrane Tobacco Addiction Group database for smoking cessation studies conducted in the community pharmacy setting, using the search terms pharmacist* or pharmacy or pharmacies. Date of the most recent search: March 2003. SELECTION CRITERIA: Randomized trials which compared interventions by community pharmacy personnel to promote smoking cessation amongst their clients who were smokers compared to usual pharmacy support or any less intensive programme. The main outcome measure was smoking cessation rates

at six months or more after the start of the intervention. DATA COLLECTION AND ANALYSIS: Data were extracted by one author and checked by the second, noting: the country of the trial, details of participant community pharmacies, method of subject recruitment, smoking behaviour and characteristics of participants on recruitment, method of randomization, description of the intervention and of any pharmacy personnel training, and the outcome measures. Methodological quality was assessed according to the extent to which the allocation to intervention or control was concealed. Because of the potentially important cluster effects, we also rated trials according to whether they checked for or adjusted for these but, in the absence of consensus on how to pool cluster level data, we adopted a narrative approach to synthesizing the data, rather than a formal meta-analysis. MAIN RESULTS: We identified two trials which met our selection criteria. They included a total of 976 smokers. Both trials were set in the UK and involved a training intervention which included the Stages of Change Model; they then compared a support programme involving counselling and record keeping against a control receiving usual pharmacy support. In both studies a high proportion of intervention and control participants began using NRT. Both studies reported smoking cessation outcomes at three time points. However, the follow-up points were not identical (three, six and 12 months in one, and one, four and nine months in the other), and the trend in abstinence over time was not linear in either study, so the data could not be combined. One study showed a significant difference in self-reported cessation rates at 12 months: 14.3% versus 2.7% ($p < 0.001$); the other study showed a positive trend at each follow-up with 12.0% versus 7.4% ($p = 0.09$) at nine months. REVIEWER'S CONCLUSIONS: The limited number of studies to date suggests that trained community pharmacists, providing a counselling and record keeping support programme for their customers, may have a positive effect on smoking cessation rates. The strength of evidence is limited because only one of the trials showed a statistically significant effect.

Skoglund, P., D. Isacson, et al. (2003). "Analgesic medication--communication at pharmacies." Patient Educ Couns **51**(2): 155-61.

Treatment conducted in co-operation with the client is decisive for a successful result i.e. adherence to medication, satisfaction and improved health outcome. The aim of this study was to capture the communication between clients and pharmacists when dispensing prescriptions of analgesics in community pharmacies. The study was based on 42 authentic audio-recordings of clients' communication with pharmacists. Most clients had a passive role and the analysis testify to a short and asymmetric communication between the interlocutors. On average, the clients asked three questions. One-third of these questions were related to medication, i.e. dose, effect, written information, symptoms or disease. Of the questions asked by pharmacists, 2% were open in character. The study confirms previous research in other settings on caregiver dominance in consultations. Concordance in pharmaceutical care assumes a much more active client. Therefore facilitating a more active role for the clients at pharmacies is of the outmost importance.

Sleath, B., P. J. Bush, et al. (2003). "Communicating with children about medicines: a

pharmacist's perspective." Am J Health Syst Pharm **60**(6): 604-7.

Sleath, B., R. H. Rubin, et al. (2001). "Physician-patient communication about over-the-counter medications." Soc Sci Med **53**(3): 357-69.

The purpose of this study was to describe physician-patient communication about over-the-counter medications using a data set comprised of audio-tapes and transcripts of 414 primary care medical visits. The data set was collected during 1995 at the family practice and general medicine clinics at the University of New Mexico Health Sciences Center. Twenty-seven resident physicians and 414 of their adult patients participated. Fifty-seven percent of patients reported using one or more OTC medications during the past month. Analgesics, cold or allergy products, and antacids were the most commonly used OTC medications. White patients were significantly more likely to have reported using an analgesic in the past month than non-white patients. Female, white, and younger patients were more likely to have reported using a cold or allergy product in the past month than male, non-white, and older patients. Approximately 58% of patients discussed OTC medications with their physicians. Older patients and female patients as well as patients who reported using an antacid in the past month were significantly more likely to have discussed OTC medications with their physicians. Physicians asked questions about OTC medications during only 37% of encounters. Patients asked questions about OTC medications during 11% of encounters. Patient ethnicity did not influence physician or patient question-asking and information-giving about OTC medications. Male physicians were more likely to state information and ask questions about OTC medications than female physicians. Patients were more likely to ask male physicians questions about OTC medications. Physicians were more likely to state OTC information to and ask OTC questions of female and older patients. Physicians were more likely to ask less educated patients questions about OTC medications. Less educated patients were more likely to ask physicians questions about OTC medications. Despite the fact that more than half of all patients reported using OTC medications, physicians asked questions about OTC use during only approximately one-third of encounters. Of patients who reported using an OTC medication in the past month, 58% did not tell their physicians, yet only 14% of patients believed that it was not important for the physician to know about their OTC use. Physician-patient communication about OTC medications should be encouraged so that the patient becomes a collaborative partner in medication management.

Smith, F. (2004). "Community pharmacy in Ghana: Enhancing the contribution to primary health care." Health Policy & Planning **19**(4): 234-241.

It is widely believed that pharmacists could make a greater contribution to the provision of primary health care, especially in developing countries. Particular strengths of pharmacy services commonly cited include their accessibility within many communities and the opportunities for advising on the management of health problems. The potential for pharmacy to respond to health care needs and contribute to specific health policy objectives is receiving greater prominence both internationally and in individual countries. However, despite this widely acknowledged potential, developments have been limited. Pharmacy is

concerned with promoting the safe and appropriate use of drugs. Drug use in developing countries has frequently been described as irrational. It is influenced by a wide range of factors, including health and drugs policy, the organization and provision of health care, the availability of objective information, and health beliefs and cultural perspectives regarding health and drug therapy. The practices of pharmacy retailers, which are conducted in the context of wider structures and processes of health care provision, have also been questioned. The aim of this paper is to consider possible directions for community pharmacy service development in Ghana. The paper draws on the literature relating to health care, drug use and pharmacy in Ghana to describe the background against which pharmacy services operate. In the context of current directions in pharmacy practice and policy, potential opportunities and barriers regarding the development of services are then addressed.

Smith, S. C. (2003). "Reducing ophthalmic drug-related injuries in older patients." Insight **28**(2): 33-4.

Smith, S. R., C. E. Golin, et al. (2004). "Influence of time stress and other variables on counseling by pharmacists about antiretroviral medications." Am J Health Syst Pharm **61**(11): 1120-9.

PURPOSE: The medication counseling practices of pharmacists caring for patients with HIV infection and the factors influencing their counseling behaviors regarding antiretroviral medications were examined. METHODS: A questionnaire was mailed in February 2000 to pharmacist-managers of 573 ambulatory care pharmacies providing medications to beneficiaries of the North Carolina AIDS Drug Assistance Program. The frequency of and attitudes about adherence counseling for patients with HIV infection; the time allocated, spent, and needed to provide high-quality care to these patients; and pharmacists' time pressure and time stress were measured. RESULTS: Of the 573 questionnaires mailed, 440 (77%) were usable. Fifty-nine percent of pharmacists reported that they did not have enough time to provide adherence counseling to patients receiving antiretroviral medications, and 45% reported that most of their patients did not receive such counseling. Time-stressed pharmacists were significantly less likely to perform 12 of 22 counseling behaviors, including discussing adverse effects (13% versus 24%, $p < 0.0089$), drug interactions (13% versus 31%, $p < 0.0001$), and what to do if a dose is missed (8% versus 23%, $p < 0.0001$). Multivariate analysis revealed that time stress, perceived skill and interest in adherence counseling, and job satisfaction were significantly associated with the counseling index. CONCLUSION: Time pressure and other barriers appeared to limit the care that some pharmacists offered to patients with HIV infection. Pharmacist age, job satisfaction, and perceived skill and interest in adherence counseling influenced the comprehensiveness of the counseling pharmacists provided for patients receiving antiretroviral medications.

Sokar-Todd, H. B. and T. R. Einarson (2003). "Community pharmacy practice research: A systematic review of the past 32 years." Canadian Pharmaceutical Journal **136**(8): 26-38.

Objectives: To identify and analyze research published on Canadian community

pharmacy practice with a view to establishing baseline information on such research. Methods: International Pharmaceutical Abstracts, EMBASE, and MEDLINE databases were searched from 1970 onward. Publications were retrieved, grouped by decade, categorized (to identify research articles), and then processed for descriptive analysis to identify topic areas studied, target populations, stated objectives, methods applied, and province of the study. Results: Of the 437 articles identified, 77 were research studies and were accepted for analysis. Seven research areas were identified: pharmacists' attitudes, perceptions, and willingness (n = 25); extent, quality, and impact of pharmacists' counselling and interventions (n = 6); factors affecting the provision of health care (n = 6); type, extent, and quality of pharmacy services (n = 15); clients' attitudes and perceptions toward pharmacists and pharmacy services (n = 7); opinions about the pharmacist's role (n = 3); and intervention studies for program implementation or evaluation (n = 15). In total, 68 data collection procedures appeared in the 62 nonintervention studies: self-completed questionnaires (n = 33), interviews (n = 11), records (n = 8), observation (n = 5), focus groups (n = 2), secret shopper (n = 2) and others (including pill count, time recording, telephone surveyor calls, survey form) (n = 7). Conclusions: The growing number of publications over time reflects the expansion of pharmacy practice research in Canada. The predominant use of self-completed questionnaires suggests that researchers should give attention to the strength and credibility of other techniques. Examples of areas studied and suggestions provided should assist Canadian researchers in structuring future research agendas and identifying potential research opportunities.

Spruill, W. J. and W. E. Wade (2004). "Cancer awareness and prevention activities: assessment of pharmacists' knowledge and interest." J Am Pharm Assoc (Wash DC) **44** (1): 94-8.

Steele, A. (2002). "The role of preventative services for older people." International Journal of Health Promotion & Education **40**(3): 91-96.

With an increasingly ageing population with high levels of dependency and a range of health and social care needs, housing professionals are having to review critically their strategies for housing the elderly in the new millennium. Purpose-built housing for this client group in the UK is going through a period of very low demand and this is set to continue. At the same time, the excessive costs associated with institutional care have led many policy-makers to consider innovative approaches to housing solutions for the elderly. One of the main aims of current UK policy is to consider approaches which delay or reduce the demand from this section of the population for long-term care. One such 'demonstration' project in the UK addresses this issue, by considering the impact of the provision of a range of preventative services (including health promotion, community pharmacists, GPs, chiropodists and social workers), delivered in a highly convenient and effective way by using four existing purpose-built sheltered housing schemes for the elderly. This multi-agency project (led by housing, health and social care professionals) highlights the benefits of such a preventative project for the elderly, through, for example, greater personal health awareness, less social isolation, greater confidence and self-help, and ultimately

greater independence. The project also identifies important benefits for service providers. This paper outlines the nature of this preventative project in the UK and the potential benefits to the elderly in terms of their housing, health and social care needs.

Stevens, V. J., R. J. Shneidman, et al. (2002). "Helicobacter pylori eradication in dyspeptic primary care patients: a randomized controlled trial of a pharmacy intervention." West J Med **176**(2): 92-6.

OBJECTIVE: To determine the effectiveness of structured adherence counseling by pharmacists on the eradication of Helicobacter pylori when using a standard drug treatment regimen. DESIGN: Randomized controlled clinical trial. SETTING: Nonprofit group-practice health maintenance organization (HMO).

PARTICIPANTS: HMO primary care providers referred 1,393 adult dyspeptic patients for carbon 14 urea breath testing (UBT). INTERVENTIONS: Those whose tests were positive for H pylori (23.3%) were provided a standard antibiotic regimen and randomly assigned to receive either usual-care counseling from a pharmacist or a longer adherence counseling session and a follow-up phone call from the pharmacist during drug treatment. All subjects were given the same 7-day course of omeprazole, bismuth subsalicylate, metronidazole, and tetracycline hydrochloride (OBMT). Dyspepsia symptoms were recorded at baseline and following therapy. OUTCOMES: The main outcome was eradication of H pylori as measured by UBT at 3-month follow-up. Secondary outcomes were patient satisfaction and dyspepsia symptoms at 3-month follow-up. RESULTS: Of the 333 participants randomly assigned to treatment, 90.7% completed the 3-month follow-up UBT and questionnaires. Overall eradication rate with the OBMT regimen was 80.5% with no significant difference in eradication rates between the 2 groups ($P=0.98$). Conclusions In this study, additional counseling by pharmacists did not affect self-reported adherence to the treatment regimen, eradication rates, or dyspepsia symptoms but did increase patient satisfaction.

Stewart, I. (2001). "New drug confusion." Canadian Pharmaceutical Journal **134**(7).

Sticklen, N. (2003). "Festive season media campaign will promote pharmacists as health experts." Pharmaceutical Journal **271**(7278): 793-794.

Storimans, M. J., H. Talsma, et al. (2004). "Dispensing glucose test materials in Dutch community pharmacies." Pharm World Sci **26**(1): 52-5.

OBJECTIVE: To assess the proportion of diabetic patients who collect self-monitoring equipment for glucose testing in Dutch community pharmacies.

METHODS: Data were used from the PHARMO-Record Linkage System, containing pharmacy dispensing records from 1991 to 1998. The study population consisted of patients who received at least two prescriptions of insulin and/or oral hypoglycemic agents. Information was collected on patient demographics, antidiabetic drug use and self-monitoring equipment (blood glucose meters and test strips). Type of diabetes was determined for all incident users of antidiabetic drugs. MAIN OUTCOME MEASURE: The proportion of patients per community pharmacy, who were dispensed self-monitoring equipment at least once. RESULTS: The study population consisted of 11,358

diabetic patients. The number of incident patients was 5,050, of whom 91.7% had type 2 diabetes. Twenty-nine pharmacies were included. The mean proportion of patients per pharmacy who received test strips at least once was 30.1% (SD = 6.7%), range 19-46%. The proportion of patients who were dispensed test strips was almost three times higher among type 1 than among type 2 patients (54% vs. 17%). CONCLUSION: In comparison to other countries' published data, Dutch community pharmacies dispense relatively few glucose test materials to diabetic patients. There are substantial differences between pharmacies in dispensing test strips. Further research is needed into the determinants governing the use of test strips at both patient and pharmacy level.

Strain, J. D., J. A. Jorgenson, et al. (2005). "Development and implementation of a pharmacy directed community health education and screening program." Hospital Pharmacy **40**(1): 54-60.

Purpose: A major obstacle to successfully offering health care education programs is a lack of access to large numbers of people. To capture a large audience we proposed a pharmacy directed community health education and screening program using the hockey games at the University of Utah as the venue to educate a significant population. The objectives of this project were to evaluate the patrons' perception of health care screening/education sessions offered at hockey games and to discover the number of patrons participating in the programs. Methods: A variety of health care screening/education programs were offered at 12 hockey games on the University of Utah campus. Health care professionals were present to provide information, conduct screenings, and answer questions. All patrons who participated were asked to complete an anonymous survey to determine if the health sessions in this setting were beneficial. Results: A total of 801 useable surveys were received from patrons who were screened and/or educated. Overall, the health care screening/education sessions were well perceived with 92% of the patrons rating the overall value of the sessions as 'very good' or 'excellent.' Patrons who were identified as being at risk for certain disease states were encouraged to follow-up with a physician. Conclusion: The health care education/screening sessions provided at the University of Utah hockey games were successful based on the survey results and the number of patrons who participated. This program also demonstrated pharmacists can play a very effective role in designing and delivering health education to large numbers of patients.

Stroup, J., M. P. Kane, et al. (2003). "Pharmacist-run teriparatide clinic." Am J Health Syst Pharm **60**(21): 2247-9.

Sturgess, I. K., J. C. McElnay, et al. (2003). "Community pharmacy based provision of pharmaceutical care to older patients." Pharm World Sci **25**(5): 218-26.

AIM: To measure the outcomes of a harmonized, structured pharmaceutical care programme provided to elderly patients by community pharmacists. METHOD: A randomised, controlled, longitudinal, clinical trial with repeated measures was performed over an 18-month period, involving community pharmacies (5 intervention and 5 control) in Northern Ireland. Elderly, ambulatory patients (> or = 65 years), taking 4 or more prescribed medications were eligible for

participation. Patients attending an intervention pharmacy received education on medical conditions, implementation of compliance strategies, rationalizing of drug regimens and appropriate monitoring; patients attending control sites received normal services. A battery of clinical, humanistic and economic outcomes were assessed. RESULTS: A significantly higher proportion of intervention patients were compliant at the end of the 18-month study and experienced fewer problems with medication compared to control patients ($P < 0.05$). There was little impact on quality of life and health care utilisation. CONCLUSIONS: Pharmaceutical care provision to community-dwelling patients resulted in an improvement in medication compliance and evidence of cost-savings. Future pharmaceutical care studies may benefit from a more focussed selective approach to data collection and outcomes measurement.

Suh, D. C., J. Barone, et al. (2001). "Evaluation of Pharmacists' Practice in Providing Asthma Care." Journal of Managed Pharmaceutical Care 1(4): 41-57.

Objective: To assess the extent of asthma care provided by pharmacists, according to the National Heart, Lung, and Blood Institute (NHLBI) guidelines for the role of pharmacists in asthma care, and to compare frequency of asthma care between attendees and nonattendees of an asthma disease certificate program (CP). Design: A cross-sectional design with data collection mode of mail survey. Participants: Two hundred pharmacists who attended an asthma CP and 500 randomly selected pharmacists licensed to practice in the State of New Jersey who did not attend a CP in asthma. Main Outcome Measures: Mail survey measured: (a) degree of asthma education services provided by pharmacists; (b) obstacles to pharmacists' delivery of asthma services; and (c) impact of the asthma certificate program on pharmacy practice. Results: The extent of asthma care provided by pharmacists who attended the CP did not differ significantly from that delivered by pharmacists who did not attend the CP, despite the fact that 94 percent of the CP attendees indicated that the program had increased their confidence and ability to educate their patients. Frequencies of asthma services provided by retail CP attendees were similar to retail non-CP attendees; however, hospital CP attendees were more likely to provide asthma care than hospital pharmacists who did not attend the CP ($p < 0.05$). Lack of pharmacists' time and patients' time and/or interest were rated as the leading barriers to the delivery of asthma education services to patients. Conclusion: The pharmacist's role in asthma care put forth in the NHLBI guidelines has not been well integrated into the practices of pharmacists. Participation in an asthma disease certificate program did not significantly change the extent of asthma care provided. (C) 2001 by The Haworth Press, Inc. All rights reserved.

Suh, D. C., M. R. Greenberg, et al. (2002). "Pharmacists' perceptions of Healthy People goals in economically stressed cities." J Community Health 27(2): 133-50.

The objectives of the study were: (a) to determine pharmacists' perceptions of the importance of Healthy People (HP) 2000 objectives for their patients and community; and (b) to analyze pharmacists' perceived perceptions about recent trends in the characteristics of patients. Three hundred one useful questionnaire were collected from pharmacists who either own or manage a pharmacy located in New Jersey's 67 cities eligible for financial assistance. Pharmacists consider

health objectives which are directly linked to health care such as preventing, detecting, and controlling hypertension, heart disease, stroke, cancer, diabetes, and disabling conditions, to be very important. Pharmacists agree to some extent that their patients are now more willing to accept pharmacy counseling services with their prescriptions than before. In conclusion, pharmacists considered objectives related to preventive services to be the most important for HP 2000 objectives, and health promotion and health protection to be less important. The findings of this study will enhance the understanding of pharmacists' perceptions of community health issues and will be beneficial to attain the objectives of HP 2010.

Taylor, J., W. Semchuk, et al. (2003). "Patient satisfaction with a smoking cessation program in community pharmacies." Canadian Pharmaceutical Journal **136**(5): 30-34.

Taylor, J. R. and L. M. Lopez (2004). "Cholesterol: point-of-care testing." Ann Pharmacother **38**(7-8): 1252-7.

OBJECTIVE: To review the literature regarding point-of-care (POC) cholesterol monitors and describe their role in pharmacy practice. DATA SOURCES: Primary articles were identified by a MEDLINE search (1966-May 2003); references cited in these articles provided additional resources. STUDY SELECTION AND DATA EXTRACTION: All of the articles identified from this search were reviewed, and all information deemed relevant was included. DATA SYNTHESIS: Hyperlipidemia is a well-established risk factor for coronary artery disease, which is the leading cause of death in the US. The use of POC cholesterol monitors may help to improve the identification and management of this disease. Pharmacists may use many of these devices in their practice and are also in an ideal position to provide patient education on selection and use of these monitors and interpretation of the results. CONCLUSIONS: The availability of POC cholesterol monitors has increased in recent years. Based on currently available data, these monitors are best suited for screening purposes and to assist in the management of hyperlipidemia. There is not enough evidence to support the notion that POC cholesterol monitors can replace laboratory or office monitoring. Their application in the diagnosis of hyperlipidemia is also currently limited.

Teh, R., T. Chen, et al. (2001). "Consumer perspectives of pharmacist-delivered health information and screening services." International Journal of Pharmacy Practice **9**(4): 261-267.

Objective - Community pharmacy has been increasing its involvement in health promotion, especially information provision and screening, over the past decade. Little is known about how consumers view these services and there is a need to evaluate the level of consumer endorsement of this role. The aim of this study was to evaluate consumer attitudes towards pharmacist-delivered health information and screening services over time and with personal experiences of these services, as part of a standardised pharmacy programme. Method - A validated instrument was administered in 1994 (n=98) and 2000 (n=58) to consumers who had not experienced a pharmacist health information and screening programme, and to a population in 2000 (n=159) who had received such a service. Comparisons of consumer attitudes were made between the

unexposed 1994 and 2000 populations to test for the influence of time, and between the exposed and unexposed samples in 2000 to test for the effect of personal experience of the service. Setting - Data were collected in seven community pharmacies in various non-metropolitan regions of New South Wales, Australia. Key findings - Even after accounting for demographic variation between cohorts, consumers had a more positive attitude towards pharmacist screening over time, and towards both health information and screening after personal experience of these services. Conclusion - Community pharmacists should be encouraged to participate more in health information provision and screening in order to take advantage of and further promote consumer endorsement of these pharmacist services.

Thein, H. H., M. Denoe, et al. (2003). "Injecting behaviour of injecting drug users at needle and syringe programmes and pharmacies in Australia." International Journal of Drug Policy **14**(5-6): 425-430.

Objective: To compare demographic and injecting characteristics of clients collecting needle syringes from needle syringe programmes (NSPs) and pharmacies. Methods: Clients obtaining needle syringes from three NSPs and one pharmacy in the same geographic area during one and four weeks, respectively were asked to complete a self-administered questionnaire. Results: Approximately half the 336 NSP (56%) and 63 pharmacy (49%) respondents reported using both NSPs and pharmacies in the past month. NSP and pharmacy respondents were similar on many characteristics: male gender (60 and 62%, respectively); median age (30 years for both groups); median age at first injection (18 years both groups); history of methadone treatment (62 and 53%); and heroin as the last drug injected (60 and 59%). NSP respondents were more likely than pharmacy respondents to report imprisonment in the previous year (20% versus 8%, $P = 0.05$), daily injection (67% versus 56%, $P = 0.09$) and re-use of more than one other person's needle syringe in the previous month (27% versus 7% of 52 and 15 reporting needle syringe re-use). Pharmacy respondents were more likely than NSP respondents to report amphetamine use (32% versus 10%, $P < 0.001$), shared use of tourniquets (24% versus 12%, $P = 0.01$), spoons (43% versus 32%, $P = 0.09$), filters (22% versus 15%, $P = 0.1$), or drug mix (16% versus 9%, $P = 0.1$), and difficulty finding a vein (73% versus 26%, $P < 0.001$). Conclusion: The risk profile of IDUs (Injecting Drug Users) recruited at various sites provides important information for behavioural surveillance and health promotion efforts. Increased convenience of needle syringe access enhances HIV prevention efforts, however, appropriate education is required for people obtaining needle syringes at pharmacies to reduce sharing of injecting equipment other than needle syringes. (C) 2003 Elsevier B.V. All rights reserved.

Till, L. T., J. C. Voris, et al. (2003). "Assessment of clinical pharmacist management of lipid-lowering therapy in a primary care setting." J Manag Care Pharm **9**(3): 269-73.

BACKGROUND: Pharmacists have been shown to positively impact the outcomes of care for treatment of many different kinds of disease states. In particular, pharmacist-run lipid clinics have enjoyed varying degrees of success, depending on the outcome assessed. At our hospital, when a patient is transferred to the pharmacist-coordinated lipid clinic, the primary care pharmacist

is responsible for ordering and interpreting labs and prescribing and monitoring lipid-altering therapy. **OBJECTIVE:** This study was designed to assess if there is a statistically significant difference between the magnitude of serum cholesterol reduction for patients receiving lipid-altering pharmacotherapy when clinically trained pharmacists are actively prescribing and adjusting the drug therapy compared to other health care practitioners (usual care). **METHODS:** Patient records from the hospital computer databases were retrospectively and randomly selected for analysis. Following evaluation for inclusions and exclusions, 41 patient records remained for statistical analysis for the cohort group, and 47 records remained from the group of patients managed by a clinical pharmacist. **RESULTS:** Management of dyslipidemia by a clinical pharmacist was associated with a significant reduction in overall mean low-density lipoprotein (LDL, 18.5%) compared to the cohort that did not have a clinical pharmacist as the primary manager of dyslipidemia (6.5%, $P=0.049$). This suggests improved clinical outcomes, defined as greater LDL reduction, when clinical pharmacists participate in lipid management, including drug prescribing. The magnitude reduction in LDL was found to be related to the number of clinical pharmacy visits (11.4% for 1 visit, 23.2% for 2 visits, and 23.7% for >3 visits), compared to the usual care group (-11.0%, 18.0%, and 7.4%; statistically significant, $P=0.038$, for >3 visits only). These results occurred even though the group of dyslipidemic patients managed primarily by a clinical pharmacist contained a statistically greater number of patients with 2 or more risk factors and high-density lipoprotein (HDL) levels less than 40 mg/dL. **CONCLUSION:** Interdisciplinary medical teams that include clinical pharmacists who are actively prescribing and adjusting lipid drug therapy may achieve greater reductions in LDL for patients who have been assessed with multiple risk factors compared to patients managed without clinical pharmacists. Active participation by clinical pharmacists in lipid management for patients with elevated LDL resulted in improved treatment success as measured by the magnitude reduction in LDL. The reduction in LDL was between 5% and 22% per visit greater for patients being treated by clinical pharmacists versus usual care, even in a patient population with more risk factors. These intermediate outcomes may translate into long-term outcomes in fewer cardiovascular events, improved quality of life for patients with dyslipidemia, and lower costs associated with sequelae of dyslipidemias.

Tsuyuki, R. T., J. A. Johnson, et al. (2002). "A randomized trial of the effect of community pharmacist intervention on cholesterol risk management: the Study of Cardiovascular Risk Intervention by Pharmacists (SCRIP)." *Arch Intern Med* **162**(10): 1149-55.

BACKGROUND: Despite clear evidence for the efficacy of lowering cholesterol levels, there is a deficiency in its real-world application. There is a need to explore alternative strategies to address this important public health problem. This study aimed to determine the effect of a program of community pharmacist intervention on the process of cholesterol risk management in patients at high risk for cardiovascular events. **METHODS:** A randomized controlled trial conducted in 54 community pharmacies (1998-2000) included patients at high risk for cardiovascular events (with atherosclerotic disease or diabetes mellitus with another risk factor). Patients randomized to pharmacist intervention received

education and a brochure on risk factors, point-of-care cholesterol measurement, referral to their physician, and regular follow-up for 16 weeks. Pharmacists faxed a simple form to the primary care physician identifying risk factors and any suggestions. Usual care patients received the same brochure and general advice only, with minimal follow-up. The primary end point was a composite of performance of a fasting cholesterol panel by the physician or addition or increase in dose of cholesterol-lowering medication. RESULTS: The external monitoring committee recommended early study termination owing to benefit. Of the 675 patients enrolled, approximately 40% were women, and the average age was 64 years. The primary end point was reached in 57% of intervention patients vs 31% in usual care (odds ratio, 3.0; 95% confidence interval, 2.2-4.1; $P < .001$). CONCLUSIONS: A community-based intervention program improved the process of cholesterol management in high-risk patients. This program demonstrates the value of community pharmacists working in collaboration with patients and physicians.

Tsuyuki, R. T., K. L. Olson, et al. (2004). "Effect of community pharmacist intervention on cholesterol levels in patients at high risk of cardiovascular events: the Second Study of Cardiovascular Risk Intervention by Pharmacists (SCRIP-plus)." Am J Med **116**(2): 130-3.

Van Amburgh, J. A., N. M. Waite, et al. (2001). "Improved influenza vaccination rates in a rural population as a result of a pharmacist-managed immunization campaign." Pharmacotherapy **21**(9): 1115-22.

STUDY OBJECTIVE: To increase the rate of influenza vaccinations in high-risk patients by means of a pharmacist-managed immunization campaign. DESIGN: Unblinded, single intervention. SETTING: Rural primary care clinic. PATIENTS: Six hundred fifty-seven patients at high risk for contracting influenza according to criteria established by the Centers for Disease Control and Prevention. INTERVENTION: High-risk patients identified by chart review were mailed an education packet on influenza immunization. Vaccinations were given in specially designated clinics and during routine clinic visits. Campaign success and reasons why patients remained unvaccinated were determined by follow-up surveys. MEASUREMENTS AND MAIN RESULTS: The influenza vaccination rate increased from 28% at baseline (before program initiation) to 54% after program initiation. Unvaccinated patients were younger and resided in more urban areas than vaccinated patients; vaccinated patients had a higher frequency of cardiovascular disease or diabetes mellitus. Vaccinated patients consistently identified the education packet and their health care providers as primary motivators for vaccination. CONCLUSION: Our pharmacist-managed vaccine program increased the influenza immunization rate in high-risk patients.

Van Bergen, J., M. J. Postma, et al. (2004). "Effectiveness and cost-effectiveness of a pharmacy-based screening programme for Chlamydia trachomatis in a high-risk health centre population in Amsterdam using mailed home-collected urine samples." International Journal of STD & AIDS **15**(12): 797-802.

In order to increase case-detection of Chlamydia trachomatis (CT) in a multicultural, low-income and high-CT-prevalence neighbourhood, a novel

approach was piloted in collaboration with the pharmacy of the health centre. During a two-year period, women aged 15-29 years who collected their contraceptives at the pharmacy were offered CT-test materials. Home-collected urine could be mailed to the laboratory and the general practitioner received the results. Nine percent of respondents were CT-positive (14% among 15-24 year-olds). There was a strong association with Surinamese/Antillean background. Uptake of the programme was low (27%). Net cost per pelvic inflammatory disease prevented ranged from cost-saving up to [Euro sign]3872 in a low complication rate/high testing cost scenario. Faced with higher risk, but low participation rates, active case-detection of CT-infections in 'high-prevalence-areas' needs a concerted approach by different providers and community organizations, both in secondary and primary prevention. Pharmacists can contribute if proper liaison is made with primary care providers and/or public health services for (partner-)treatment, counselling and comprehensive sexual health care.

van Bergen, J. E., M. J. Postma, et al. (2004). "Effectiveness and cost-effectiveness of a pharmacy-based screening programme for Chlamydia trachomatis in a high-risk health centre population in Amsterdam using mailed home-collected urine samples." Int J STD AIDS **15**(12): 797-802.

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Vic, J. M. (2004). "Specific aspects of erectile dysfunction and its treatment for community pharmacists." International Journal of Impotence Research **16**(SUPPL. 2): S50-S52.

We reviewed several topics relating to erectile dysfunction (ED) and its treatment, which are of interest to the community pharmacy. First, we analyze the community pharmacy's role as a center of health education to the population. Second, we discuss the legal aspects of medical prescription for drugs not financed by the Spanish National Health Service. Finally, we explain how community pharmacists may inform patients on the proper use of prescribed medicines for ED and any medications that may cause interactions or should be

avoided with treatment.

Wadsworth, T. G. (2001). "Clinical pharmacists can improve the management of hypertension in a community pharmacy." American Association of Colleges of Pharmacy Annual Meeting **102**(Jul).

Despite tremendous progress in the last 25 yr in awareness, treatment, and control of hypertension; the current NHANES studies show that these trends have not continued to improve. This is an opportunity for pharmacists in a retail setting to offer their expertise in drug therapies and harness their unique resources to identify risk or at-risk populations. The goal of this study was to show that retail pharmacists can identify and educate HTN or at-risk patients to improve knowledge and management of hypertension, and therefore, improve disease management. Volunteers were selected based on the presence of hypertensive or lipid lowering drugs in the patient profiles found on the Super Save Drug prescription database in Pocatello, Idaho. Thirty-six respondents from 400 solicitations were randomized into one of the 3 treatment groups (A, B, C). Pre- and post-visits were scheduled for each subject 4 months apart. On each scheduled visit, Quality of Life (QoL) survey, knowledge assessment survey, a BP reading and total cholesterol measurements were collected. Following the first data collection, group A (full intervention) received a counseling session concerning their individual hypertension or dyslipidemia as well as standard brochures. Group B (partial intervention) only received the educational brochures, while the Group C (control) received no intervention. Pre- and post-QoL, disease knowledge, cholesterol, and blood pressure data comparisons were made between the groups using a one-way ANOVA. There was no significant change within or between groups for total cholesterol, blood pressure, and knowledge. Although, the knowledge scores showed no differences between groups, the mean scores increased and increased the same amount for all 3 groups. By merely participating in the program, subjects' knowledge of hypertension and risk factors for heart disease increased.

Ward, G. (2001). "Community pharmacy supply of emergency contraception. Collaboration is vital." Bmj **323**(7315): 752.

Warrick, C., A. K. Wutoh, et al. (2002). "Prostate cancer education in the Washington, DC, area." J Natl Med Assoc **94**(11): 963-70.

Pharmacists are key members of the healthcare team, especially in minority and urban communities. This study was developed to assess pharmacists' ability and willingness to counsel the public on prostate cancer in the community pharmacy setting. A mail survey was sent to all 192 community pharmacies in Washington, DC, and Prince George's County, Maryland. A total of 90 pharmacists responded to the questionnaire, providing a 46.9% response rate. One third of the pharmacists indicated a willingness to participate in a prostate cancer training program. Perceived benefits and perceived barriers were each measured through five questionnaire items using Likert-style statements with responses ranging from "strongly agree" to "strongly disagree." The most significant predictor of perceived benefits of providing prostate cancer information was gender; male pharmacists perceived greater benefits for providing prostate

cancer information than female pharmacists. Similarly, black pharmacists perceived greater benefits of providing prostate cancer information to their patients than non-black pharmacists. Also, pharmacists in stores that offered disease state management programs had a significantly lower perceived benefit of providing prostate cancer information. These findings indicate that gender and race may play a role in health promotion in health disparities. There were no significant barriers to providing prostate cancer information. Thus, many pharmacists are willing to participate in health education on prostate cancer.

Watson, L., C. Bond, et al. (2003). "A survey of community pharmacists on prevention of HIV and hepatitis B and C: current practice and attitudes in Grampian." J Public Health Med **25**(1): 13-8.

BACKGROUND: Prevention of infection with the blood-borne pathogens (BBPs) HIV and hepatitis B and C remains a major public health challenge. The aim of this study was to assess the activity, knowledge and attitudes of community pharmacists in Grampian in prevention of HIV and hepatitis B and C. METHOD: A questionnaire survey of community pharmacies was carried out in Grampian, a mixed urban-rural Health Board area in NE Scotland with a population of 532,432. RESULTS: Ninety-nine out of 128 (77 per cent) community pharmacies responded. Many pharmacies were providing services for drug misusers. Nearly all pharmacies stocked condoms, 57 pharmacists stated that they stocked extra-strong condoms, and two stocked dental dams. Two-thirds had leaflets relating to safer sex, HIV or hepatitis. Less than half stated that they had lists of local agencies dealing with drug-related or sexual health problems. Knowledge of the BBPs, and confidence in giving advice, were greater for HIV than for hepatitis B and C. Few were aware of recommendations for hepatitis B vaccination. The majority felt that in the future pharmacists could have a greater role in prevention of these infections. Principal barriers to preventive activity were described as time pressure, lack of a private area and lack of training. CONCLUSIONS: There is untapped potential for community pharmacists to be a focus for advice and information relating to prevention of HIV and hepatitis B and C; however, resources are needed to address the current barriers identified field.

Weart, C. W. and H. Leider (2004). "Opportunities for pharmacists to aid in the management of acid-peptic disorders." Disease Management & Health Outcomes **12**(4): 239-247.

There is increasing evidence that pharmacists practicing in a myriad of clinical settings, including outpatient clinics and community pharmacies, can play a key role in efforts to manage many chronic diseases. This is especially true for conditions that are prevalent, costly, and where patients frequently self-medicate using over-the-counter drugs. The acid-peptic disorders (e.g. peptic ulcer disease, gastroesophageal reflux, and reflux esophagitis) meet these criteria and present pharmacists with an ideal opportunity to improve patient outcomes, acting independently or as part of a more comprehensive disease management initiative. The opportunity exists for pharmacists to enhance the care of patients with acid-peptic disorders by identifying patients who have one of these conditions, assessing their risk for serious diagnoses (e.g. cancer) or complications (e.g. bleeding), educating patients on self management, and

optimizing medical regimens through collaboration with physicians. The major barrier for integrating pharmacists into disease management programs is reimbursement; however, some patients may be willing to pay for these services, and innovative payors may begin to provide compensation to pharmacists. Pharmacists should play a key role in new disease management models designed for conditions, such as acid-peptic disorders, that meet the criteria discussed in this article.

Weinberger, M., M. D. Murray, et al. (2001). "Pharmaceutical care program for patients with reactive airways disease." Am J Health Syst Pharm **58**(9): 791-6.

A pharmaceutical care program for patients with reactive airways disease (RAD) is described. A pharmaceutical care program for patients with RAD was developed and implemented at 36 CVS pharmacies. The impact on patient outcomes, pharmacist job satisfaction, and other variables is currently being evaluated in a controlled trial with more than 1100 patient enrollees. Guiding the program are the beliefs that pharmacists must have clinically relevant, patient-specific data to provide appropriate care; that pharmacists must have adequate training to provide pharmaceutical care; that the program must be sensitive to organizational barriers, particularly time demands; and that there must be ongoing support for the program. The program has five components: (1) computer display of patient-specific data for patients enrolled in the study, (2) distribution of tailored patient education materials, (3) use of a resource guide to facilitate the implementation of pharmaceutical care, (4) strategies to reinforce and facilitate the program, and (5) pharmacist training. While developed for community pharmacies, the program is applicable to most ambulatory care pharmacy practices. A pharmaceutical care program for patients with RAD was developed for use in community pharmacies.

Weitzel, K. W., J. V. Goode, et al. (2002). "Evaluation of a pediatric wellness program in three supermarket pharmacies: a 6-month pilot project." J Am Pharm Assoc (Wash) **42**(4): 655-7.

West, D., M. A. Blevins, et al. (2003). "A multidisciplinary approach in a community pharmacy can improve outcomes for diabetes patients." Diabetes Educ **29**(6): 962-8.

Westerlund, T., P. Allebeck, et al. (2003). "Evaluation of a model for counseling patients with dyspepsia in Swedish community pharmacies." Am J Health Syst Pharm **60**(13): 1336-41.

The outcomes of a counseling model designed to help pharmacists care for customers seeking nonprescription treatment for dyspepsia in Swedish community pharmacies were studied. A protocol containing 10 key questions based on clinical guidelines about dyspepsia symptoms and on studies of drug-related problems (DRPs) was implemented in six community pharmacies in Sweden. During two weeks in April 2002, all adult customers seeking self-care for dyspepsia were asked to participate in the interview. Depending on a customer's answers, pharmacy personnel gave advice, intervened for DRPs, or referred the customer to a physician. Customers who received advice or intervention were followed up by telephone. A total of 319 customers who met

the study criteria agreed to participate. Of these, 183 (57%) received self-care advice, 37 (12%) had DRPs, and 39 (12%) were referred to a physician because of their symptoms. Of the 198 customers fulfilling the criteria for a follow-up interview, 130 (66%) participated. Nearly all of these customers were satisfied with their visit to the pharmacy, and 9 in 10 were pleased with the advice received. Eighty-five percent claimed they had followed the self-care advice, and two in three said they felt better. DRPs were resolved in 19 (86%) of the 22 customers with DRPs who were followed up. Only one customer in five who was advised to see a physician actually did so. A counseling model designed to discover and resolve problems related to symptoms and drug use appeared to have a favorable impact on outcomes in customers with dyspepsia seeking nonprescription drug treatment in Swedish pharmacies.

Williams, H., D. McRobbie, et al. (2003). "(6) Primary prevention of heart disease." Pharmaceutical Journal **270**(7232): 86-88.

In summary, it is important to identify patients at high risk of developing CHD. This can be achieved through assessing the presence or absence of specific risk factors in an individual and calculating his or her cardiac risk over the next 10 years. Lifestyle modification is essential, but pharmacological options may be needed to control blood pressure, blood glucose and lipids and to reduce the risk of thrombotic events. Pharmacists frequently have contact with people before they experience CHD symptoms, therefore they can play an important part in primary prevention and in the primary care team.

Witt, D. M. and T. L. Humphries (2003). "A retrospective evaluation of the management of excessive anticoagulation in an established clinical pharmacy anticoagulation service compared to traditional care." J Thromb Thrombolysis **15**(2): 113-8.

BACKGROUND: Analysis of the outcomes associated with episodes of excessive anticoagulation (international normalized ratio [INR] > 6.0) managed by physicians in a group model health maintenance organization (HMO) revealed opportunities for improvement. A centralized, telephone follow-up Clinical Pharmacy Anticoagulation Service (CPAS) was later implemented in the same HMO. We sought to compare the outcomes of excessive anticoagulation episodes managed by CPAS pharmacists to traditional physician management. **METHODS:** Computerized laboratory information was used to identify episodes of excessive anticoagulation managed by CPAS clinical pharmacists during the 6-month study. Pertinent data were collected through retrospective medical record review. Results were compared to a similar analysis conducted prior to CPAS implementation (traditional management). **RESULTS:** A total of 313 INR episodes >6.0 were identified in the CPAS group compared to 301 in the traditional management group. 6.3% of patients in the traditional management group experienced major bleeding compared to 1.3% in the CPAS group ($p = 0.001$). The majority of excessive anticoagulation episodes in both groups were managed by temporarily withholding warfarin therapy. Phytonadione was administered more frequently in the traditional management group than the CPAS group, 17.0% vs. 6.4%, respectively ($p < 0.001$). Traditional management patients also received higher doses of phytonadione than CPAS patients, 13.0 mg vs. 3.3 mg, respectively ($p < 0.001$). Aggressive use of phytonadione in the

traditional management group resulted in two episodes of iatrogenic thromboembolism while no such episodes occurred in the CPAS group.

CONCLUSIONS: The management of excessive anticoagulation by a centralized telephone follow-up anticoagulation service staffed by clinical pharmacists resulted in improved clinical outcomes compared to traditional management.

Young, D. (2002). "Results of pharmaceutical care program disappoint researchers." Am J Health Syst Pharm **59**(22): 2146, 2148.

Young, D. (2003). "Asheville Project improves patient outcomes, cuts medical costs." Am J Health Syst Pharm **60**(9): 868, 871.

Young, D. (2004). "Pharmacists aid in disease management for American Indians, Alaska Natives." Am J Health Syst Pharm **61**(22): 2340, 2344.

Younis, W. S., S. Campbell, et al. (2001). "Pharmacists' attitudes toward diabetes and their involvement in diabetes education." Annals of Pharmacotherapy **35**(7-8): 841-845.

OBJECTIVE: To determine the relationship between pharmacists' attitudes toward diabetes and their involvement in diabetes patient education in the community setting. METHODS: Registered pharmacists in Arizona were mailed surveys regarding their attitudes toward diabetes and their involvement in diabetes patient education. Attitudes were measured using the Diabetes Attitude Scale (DAS); the types of educational skills evaluated were based on those recommended by the American Diabetes Association's Standards of Medical Care. RESULTS: Pharmacists' attitudes were significantly positive toward the need for special training for diabetes care, the importance of tight glycemic control, the team approach to care, and the preference for diabetes education in an outpatient setting ($p < 0.001$). The majority of the time, pharmacists provided basic patient education (52%) rather than intermediate or advanced patient education (26% and 27%, respectively). There was a negative correlation between the attitude that diabetes is a difficult disease to treat and pharmacists' involvement in diabetes patient education ($p < 0.05$). This indicates that, although pharmacists believe that diabetes is a treatable disease, they infrequently provide diabetes patient education. CONCLUSIONS: Overall, pharmacists had positive attitudes toward diabetes. These attitudes did not correlate with the degree of their involvement in diabetes patient education. More diabetes patient education through community pharmacists is needed.

Zeolla, M. M. and J. Cerulli (2004). "Assessment of the effects of a community pharmacy women's health education program on management of menopause survey scores." J Manag Care Pharm **10**(5): 442-8.

OBJECTIVE: This study examined the effect of a community pharmacy-based menopause education program on scores of the Management of Menopause (MoM) survey. The MoM survey is a tool administered to managed care organization members by the National Committee for Quality Assurance to determine the level of menopause-related education offered by their health care providers. The primary outcome was comparison of the median MoM survey scores of participants at baseline, 3 months, and 1 year posteducation.

METHODS: Women aged 47 to 55 years who were able to provide informed consent were enrolled. Subjects completed a baseline MoM survey. Trained pharmacists working in 7 pharmacies conducted one-on-one education sessions regarding the consequences of menopause, treatment options, and the known risks and benefits of each option. Follow-up MoM surveys were administered by mail at 3 months and 1 year posteducation. The survey is scored on a 100-point scale for an overall composite score and includes 3 subsections: exposure, breadth, and personalization of counseling. **RESULTS:** A total of 31 subjects were enrolled, with 24 and 16 completing both baseline and 3-month or 1-year MoM follow-up surveys, respectively. Median 3-month composite MoM survey scores (86.1; 95% CI, 61.1-93.1) were significantly improved from baseline (54.2; 95% CI, 36.1-62.5; $P < 0.001$). Scores on each subsection of the MoM survey also improved at 3 months, and median 1-year composite scores were significantly improved from baseline. (54.2 to 89, $P = 0.001$). Patient satisfaction with the education session was high, with a median satisfaction rating of 5 (a range of 4 to 5) on a 5-point satisfaction rating scale. **CONCLUSION:** A community pharmacy-based menopause education program significantly increased scores on the MoM survey, and subjects were satisfied with this program.

Appendix 3 Other reports of relevance

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

REPORT 1

Evidence
from the
peer-reviewed
literature
1990–2001

Claire Anderson
Alison Blenkinsopp
Miriam Armstrong



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

REPORT 1

**Evidence
from the
peer-reviewed
literature
1990–2001**

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and Social Pharmacy,
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**Royal
Pharmaceutical
Society**
of Great Britain

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Report 2 Evidence from the non peer-reviewed literature 1990-2002

Report 3 An overview of the evidence-base from 1990-2002 and
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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.



Yve Buckland

Chair
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Agency



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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*

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).

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

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 &

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).

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.

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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Tsuyuki RT, Johnson JA, Teo KK, *et al* (1999). Study of cardiovascular risk intervention by pharmacists (SCRIP): a randomised trial design of the effect of a community pharmacist intervention on serum cholesterol risk. *Ann Pharmacother* **33**: 910–19.

Tsuyuki RT, Johnson JA, Teo KK, *et al* (2000). A randomised trial of the effect of community pharmacist intervention on cholesterol risk: the study of cardiovascular risk intervention by pharmacists (SCRIP). *Can J Cardiol* **16**: 107.

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Wick M, Ackermann-Liebrich U, Bugnon O & Cerise C (2000). Evaluation of the Swiss Society of Pharmacists' Campaign 'Future Non-smoker'. *Soz Präventivmed* **45**: 73–84. (German paper, English abstract.)

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.

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 & Wisehart 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, Chaikunapruk 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, McElroy JC, Hughes CM, Gleadow 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 Geneeskd* (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.

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

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.

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.



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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.

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

REPORT 2

**Evidence
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Report 3 An overview of the evidence-base from 1990 – 2002 and
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FOREWORD

Since the first report in this series¹ became available, the modernisation of the National Health Service across the United Kingdom and community pharmacy's role within that has steadily progressed. The plans set out by the UK Government² and devolved administrations³ outlined a vision for developing the NHS and pharmacy services that gave the needs of those who use the service much higher priority and, especially, focused on improving access to care.

Many initiatives that were outlined in those plans – for example proposals for supplementary prescribing and Local Pharmaceutical Service pilots – have now begun to be put into practice and their potential for improving services to patients will soon become apparent. Both general medical practice and pharmacy have been equally affected by these developments, which have often served to bring the two professions closer together to deliver better patient care.

One area for development that still remains relatively unexplored is the potential contribution that community pharmacy can make to improving the public's health and how it can work more closely with general medical practice to achieve this. In some instances – for example in smoking cessation⁴ – there is a relatively good history of co-operation between general practice, the NHS smoking cessation services and community pharmacy across the UK which has served to ensure that patients

1 Anderson C, Blenkinsopp A and Armstrong M (2003). *The contribution of community pharmacy to improving the public's health. Report 1: Evidence from the peer-reviewed literature 1990 – 2001*. Launched at the British Pharmaceutical Conference in September 2001 and is available on the website: www.rpsgb.org.uk/patientcare/.

2 For example, see the Department of Health policy documents: *The NHS Plan: a plan for investment. A plan for reform* (2000) and *Pharmacy in the future: implementing the NHS Plan* (2000).

3 For example, see the Scottish Executive documents: *Our National Health: A plan for action, a plan for change* (2000) and *The right medicine: a strategy for pharmaceutical care in Scotland* (2002); and the National Assembly for Wales document: *Improving health in Wales – a plan for the NHS and its partners* (2001) and the Welsh Assembly Government consultation document: *Remedies for success: a strategy for pharmacy in Wales* (2002).

4 A survey of all UK NHS commissioning bodies was undertaken in 2002 to assess the existing number of health improvement projects that involved community pharmacies. The findings indicated that the most common health topic by far for community pharmacists to be involved with was smoking cessation and that these projects were evenly spread throughout the UK. See the report *Local pharmacy health development projects – testing models of implementation in community pharmacy* (2002) – unpublished work available on request from pharmacyhealthlink@rpsgb.org.uk or 020 7572 2265 – for more details.

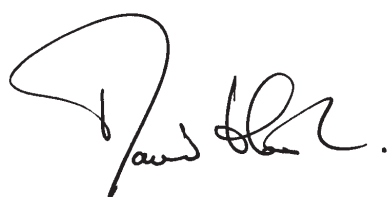
have access to a comprehensive 'stop smoking' service at a local level. In other areas of prevention however – for example sexual health and drug misuse services – there is much less evidence that these services are either in existence or that there are plans for their development.

The main purpose of the second report is to outline additional evidence from the non peer-reviewed literature indicating which health improvement topics might be appropriately tackled within a community pharmacy setting and how these are best delivered. Relevant findings from the first report have also been included to help this assessment.

In addition this report provides much more detail on the relationship between, and attitudes of, the different stakeholders concerned with improving the public's health in a community pharmacy setting. Pharmacy users' views, in particular, provide a very interesting perspective on service provision that we hope will encourage health service planners and general medical practitioners to think more broadly about how the 'added value' of easy access to community pharmacies might help deliver their public health objectives.



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EXECUTIVE SUMMARY

Aim

To identify and critically appraise the non peer-reviewed UK research on the contribution of community pharmacists to improving the public's health.

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

Sources of non peer-reviewed literature were identified through key informants, and a survey of academic departments of pharmacy and related subjects. Criteria were developed for a review of research quality and a list of inclusion criteria for the review was constructed.

Results

In total, 45 studies were identified, 37 of which were included in the review. The most common reason for exclusion was a low survey response rate. Community pharmacists (27 studies), pharmacy users (22 studies) and primary health care team members (7 studies) were the most frequently included participant groups. Twelve studies involved the investigation of both pharmacist and stakeholder attitudes towards pharmacists' role in health improvement. Thirteen studies addressed general health issues and 24 covered specific health topics, of which the

most commonly studied were sexual health, including emergency hormonal contraception (9 studies) and head lice management (4 studies).

Many of the findings from this review confirmed, or added further information to, the findings from the peer-reviewed literature (Report 1 of this series). To help identify the key discussion points the main findings of this report have been presented as answers to various questions.

Where does the non peer-reviewed literature provide confirmatory evidence of the findings of the peer-reviewed literature?

The non peer-reviewed literature supported the findings from the peer-reviewed literature in the following areas:

- Both community pharmacists and pharmacy users perceive pharmacists' roles in improving the public's health to be primarily medicines-related.
- Public use of community pharmacies is almost universal but is low for general health advice.
- The actual experience of service users is generally more positive than their prior perceptions of access to, and value of, advice and services from community pharmacies.
- Pharmacists have concerns about the receptiveness of GPs and the public to any extended role for them in health improvement and, as a result, their willingness to opportunistically offer general health advice is reduced.
- Pharmacy patient medication records were found to be effective in identifying 'at risk' patients to prompt and enable pharmacist intervention for influenza vaccination.
- Training has a positive effect on pharmacists' consultation and information-giving behaviour.

Where does the non peer-reviewed literature provide new evidence?

New or additional evidence was found in the following areas:

Health topics

- *Drug misuse services* – the studies reviewed found that most drug misusers value community pharmacy-based services highly. Positive pharmacist attitudes were correlated with higher levels of service provision for drug misusers but practising pharmacists had more negative opinions than undergraduate pharmacy students.
- *Sexual health* – public interest in the availability of advice on contraception and safer sex through pharmacies is high. Whilst pharmacists express considerable support for their involvement in promoting safer sex and contraception, they report that they are rarely asked for such advice, and they are reluctant to offer it proactively.
- *Emergency hormonal contraception (EHC)* – the review extended the available evidence on EHC supply through community pharmacies, particularly through feedback from some 1600 users in three major studies. Pharmacy supply of EHC enables most women to receive it within 24 hours of unprotected sexual intercourse and services were highly rated by women. Feedback from pharmacist providers was mainly positive and there was a clear wish to extend the use of Patient Group Directions to enable supply to under-16-year-olds.
- *Head lice management* – evidence based on evaluations of over 8600 head lice consultations in two community pharmacies was reviewed. Quality indicators included the percentage of consultations where no treatment was provided, requirements for proof of infestation, adherence to local treatment formularies and feedback from users, pharmacist providers and other health professionals. Overall

one-quarter to one-third of consultations resulted in no treatment being supplied. Adherence to treatment formularies by community pharmacists was close to 100%. Feedback from scheme users, pharmacist providers and other health care professionals was predominantly positive.

Factors affecting community pharmacy-based activities to improve health

The review extended the evidence on pharmacy users' views on privacy and confidentiality in the pharmacy. Most pharmacy users of potentially sensitive services – for example EHC and head lice management – reported adequate facilities for privacy in community pharmacy but a sizeable (up to 20%) minority consistently expressed some concerns. The perceived concerns of pharmacy users about privacy, however, are generally not borne out in the reports of actual experience, although community pharmacists and users appear to have different perceptions of what constitutes acceptable facilities for maintaining privacy. Up to 20% of women obtaining EHC from community pharmacies reported having concerns about confidentiality and this was higher among those under 19 years of age.

The review showed that while community pharmacists consider leaflets to be an important component of their toolkit for improving the public's health, passive displays of leaflets may be missed by half of pharmacy customers. Multimedia technology appears to be a means of engaging young and healthy pharmacy customers in health improvement activities.

Stakeholder views

The non peer-reviewed evidence shows that the new community pharmacy service developments in EHC supply and head lice management were well received by other primary care health professionals. The extent of sustained joint working between community pharmacists and other members of the primary health care team was low (although it is noteworthy that these studies were from

the mid-1990s). There was some evidence that joint working might be improved by joint training.

Where does the non peer-reviewed literature indicate potential for further development?

The following areas were identified as being worthy of further research and investigation of feasibility:

- *Use of aspirin in the prevention of coronary heart disease* – pharmacists are perceived by people taking prophylactic aspirin as an appropriate potential source of advice on aspirin and heart disease. These patients have unmet information needs that they perceive could be met by pharmacists but generally this is not done at present.
- *Oral health* – the evidence indicates that a more proactive approach by community pharmacists is needed to maximise opportunities for improving oral health. Most requests for paediatric over-the-counter medicines in pharmacies were for named medicines, indicating that active intervention from the pharmacist would be needed to change purchasing patterns towards sugar-free alternatives. Training and participation in oral health promotion activities appeared to increase pharmacists' efforts to try to change people's medicine-buying behaviour.
- *Mental health* – little evidence was found on community pharmacist involvement in improving mental health. A study of pharmacy users, however, showed that they purchase products to reduce stress and anxiety and take up leaflets available in pharmacies on these topics – particularly on sleep problems and relaxation – indicating that there may be a role for pharmacists to proactively offer more support. The vast majority of pharmacy users, though, did not name the pharmacist as their preferred source of advice on stress and anxiety.
- *Prevention of transmission of infection* – community pharmacists were found to have generally positive attitudes towards involvement in prevention of transmission of infection but to have variable

knowledge about the transmission of HIV, hepatitis B and hepatitis C. In conjunction with the findings from immunisation and drug misuse services, there appears to be potential for further exploring the health protection role of community pharmacists.

- *Accidental injuries: falls prevention* – a pharmacy-based osteoporosis screening service involving pharmacist and nurse input in one pharmacy was found to be feasible and identified women at risk of osteoporosis. Women using the scheme valued the accessibility offered by community pharmacy.
- *Accidental injuries: medicines-related injuries* – a study of unwanted medicines returned to community pharmacies during a local campaign showed that changes in therapy and adverse effects from treatment were key reasons why excess quantities of medicines occurred in people's homes. Subsequent discussions between the pharmacists and local GPs appeared to be useful for making changes in prescribing frequency to reduce wastage.

Discussion

The search of non peer-reviewed literature identified some high quality research studies that usefully contributed to the evidence base. In particular, studies provided a wealth of further evidence of users' and stakeholders' feedback on pharmacy services, identification of the key elements of effective pharmacy-based health improvement activities and on the effectiveness of various approaches to different health topics.

The non peer-reviewed studies were graded using the same framework for research quality as that used for peer-reviewed studies and hence were considered against the same standards.

The non peer-reviewed literature confirms some of the key findings from the peer-reviewed literature (Report 1). Firstly, community pharmacists are generally viewed by the public as experts who advise on medicines rather than on health and illness. Secondly, members of the

public report they are willing to receive further information on health issues from community pharmacists but are not currently receiving this advice. Thirdly, community pharmacists can provide effective health improvement activities for: smoking cessation; coronary heart disease prevention; immunisation (and identification of high risk cases for intervention by using patient medication records); supply of EHC; head lice management; and drug misuse services. Lastly, training has the potential to significantly change community pharmacists' behaviour and positively orientate their practice towards health improvement.

In addition the 'grey' literature provided further details about the perceived problems and acceptability of community pharmacists providing advice and services on sensitive health issues, such as the supply of EHC and head lice management. Specifically there were important findings on pharmacy user perspectives of privacy and confidentiality. Most users of these services reported satisfaction with the level of privacy available, but 20–25% felt there was insufficient privacy. These findings suggest that pharmacists need to consider whether their premises provide sufficient privacy to meet the needs of all users. Data on perceptions of confidentiality of pharmacy information came from EHC service users and indicate that about 20% had concerns about confidentiality. These findings suggest that the pharmacy profession should consider additional ways of informing the public about the requirement for pharmacists to maintain confidentiality.

The non peer-reviewed literature also demonstrates the potential of community pharmacies to contribute to reductions in health inequalities. People living in deprived areas and who are less affluent are among the most frequent users of pharmacies.

Conclusion

The non peer-reviewed literature strengthens the overall picture of evidence by: confirming the key findings of Report 1; adding new material on specific health topics

and on the relationships between community pharmacists and the primary health care team; and providing further insights into pharmacist and user attitudes and behaviours.

Users express a high degree of interest in the availability of further information and advice from pharmacists, although the pharmacist is not seen as a primary source. The research findings suggest considerable scope for joint working of pharmacists, pharmacy users and healthcare commissioners to develop pharmacies as a local and accessible advice point complementary to existing services.

Further research is needed to investigate the potential role of the community pharmacist in sexual health, oral health, mental health, the prevention of transmission of infection and accidental injuries. Research is also needed to track the development of collaborative working between community pharmacists and other members of the primary health care team within the new NHS infrastructure, and to measure any change in the public's perception of the pharmacist's role in providing health improvement activities. Evaluation of innovative approaches to services and premises development will also be crucial to informing service design to meet the needs of users, particularly in relation to queries about approaching the pharmacist for general health advice and perceptions about privacy and confidentiality.

1 INTRODUCTION

During the last decade there has been considerable interest and activity in research into the public health role of community pharmacies. Despite an increasing number of initiatives (including a recent European Commission project)¹ there were no recent reviews of the strength of evidence for the wider implementation of public health programmes in community pharmacies. In addition there was a broader need to clarify definitions used to describe public health activities in pharmacies, to identify which activities were most suited to a community pharmacy setting and to determine which activities warranted further research investment.

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

Report 1 reviews the findings of the peer-reviewed literature, which includes peer-reviewed journals and conference proceedings. Report 2 reviews the non peer-reviewed literature and examines aspects of implementation in more detail. The final report (Report 3) summarises all the material reviewed and makes recommendations for action.

Aim of the review

The aim was to identify and critically review the non peer-reviewed UK research on community pharmacists' contribution to improving the public's health. Non peer-reviewed ('grey') literature was defined as research that was produced as a formal report or thesis but where the findings were not available in peer-reviewed journals.

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

Scope of the review

Definitions

The review included activities described by 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).
- 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 covered elsewhere.⁴

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

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.

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.

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, 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 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.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, a full disclosure of any analysis and findings.
- *Systematicity* – evidence identified must display clearly, regardless of the individual study, report or review methodology, the process through which the evidence was gathered and assessed.
- *Relevance* – evidence must be judged to be relevant to health improvement, and in this instance to the role of community pharmacy.

⁵ See, for example, 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 *National Service Framework (NSF) on Services for Older People*, Department of Health, March 2001.

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 that 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. METHOD

Identifying non peer-reviewed research

Two sources were used:

- Key informants in England, Scotland, Wales and Northern Ireland.
- Schools of Pharmacy and postgraduate pharmacy and medicines management departments ($n = 20$) in England, Scotland, Wales and Northern Ireland.

Key informants were contacted and asked to identify any reports of research involving pharmacists improving health that had not subsequently been the subject of publication in peer-reviewed journals. Copies of the reports identified were obtained. The period for collecting evidence was January 1990 to October 2002.

A named individual in each School of Pharmacy was contacted by e-mail in February 2002, with a reminder in March 2002. Respondents were informed of the context of the review (the role of the pharmacist in public health and health promotion) and asked to identify relevant MSc, MPhil and PhD research submitted between 1990 and 2002. They were asked to send a copy of the title page and abstract from each relevant thesis. Where the abstract contained insufficient information the individual research student was contacted to obtain it.

Review of research quality

Each item was read by one of the authors (AB) and the following inclusion criteria were applied:

- (i) Reported original research.
- (ii) Sufficient methodological detail on study design, sampling and response rate.
- (iii) Adequate methodological design.
- (iv) For surveys, response rate: over 50%.
- (v) Topic within improving health remit.
- (vi) Reported within review timeframe.

Data abstraction and construction of the review

Data (see Appendix 2) were extracted from each item and summarised under the following headings:

- Identifiers: title, author/s, source type (report, thesis), year of publication, evidence grade (using Department of Health National Service Frameworks categories – see Appendix 1)
- Objectives
- Study design
- Sample and response rate
- Key findings
- Other comments

A draft containing six items (four proposed for inclusion, two for exclusion) was then read by a second author (CA) and the project Steering Group. There was agreement about application of the inclusion/exclusion criteria.

3. RESULTS

Studies included and excluded

Of the 45 studies identified, 37 were subsequently included in this review. Research abstracts on subjects within the remit of the review were received from eight university departments. One report was identified that was published immediately before the timeframe of the review (1989) and the decision was taken by the Steering Group to include it on the grounds that it was a major study, the findings of which were not otherwise disseminated.

Table 1. Studies considered for the review

Type	Number identified	Included	Reasons for exclusion
Commissioned work	24	22	Not research Low response rate
MSc/MPhil/PhD	13	11	Low response rate Outside remit
Other	8	4	Low response rate (2) Not research (1) Outside remit (1)

The results presented in the next section relate to the 37 studies included in the review. The most common reason for exclusion from the review was a low survey response rate.

The identified studies involved pharmacists, other primary health care team members and pharmacy users. Table 2 summarises the study participants. Most studies included pharmacists or users as the respondent group.

Table 2. Study participants

Pharmacists (community)	27
Pharmacy users	22
Primary health care team members	7
Pharmacy assistants	3
Pharmacists (other)	3
Other	2

Ten of the studies involved community pharmacists alone and eight involved users alone. Twelve studies involved investigating both pharmacist and stakeholder attitudes towards pharmacists' role in improving the public's health. Four studies included data collection on medicines purchased from or returned to pharmacies. Six projects included small scale feasibility trials and one PhD thesis described the development and implementation of an RCT on community pharmacists' advice on smoking cessation. The latter was one of five sources where peer-reviewed publications had eventually resulted.

Thirteen studies addressed general issues in health improvement from the perspectives of pharmacists, pharmacy users and stakeholders and four focused on a specific health topic (Table 3).

Table 3. Specific health topics and the number of studies involved

Sexual health (including emergency hormonal contraception)	9
Head lice management	4
Drug misuse	3
Accidental injury prevention	2
Smoking cessation	1
Oral health	1
Coronary heart disease – the use of aspirin in prevention	1
Mental health	1
Immunisation	1
Prevention of transmission of infection	1

Presentation of findings

The findings are presented in three main categories:

- Health topics.
- Factors affecting the effectiveness of community pharmacy-based activities to improve health.
- Stakeholder views.

The findings in the Results section have been presented in a similar format to Report 1 on the peer-reviewed literature with the key statements of evidence being highlighted in the text. This is followed by a brief summary of the studies. Further points for analysis or discussion appear in side bars to the text. The key evidence statements are presented in descending order of strength of evidence (as classified by the Department of Health National Service Frameworks grading of evidence – see Appendix 1).

Some key evidence statements arising from the peer-reviewed literature have been replicated here where relevant to the findings of the non peer-reviewed literature.

Please note that the findings presented here summarise the evidence reviewed for these two Reports only and therefore each evidence statement needs to be considered within the broader framework of factors affecting community pharmacy-based services. These factors have been given some consideration in the form of analysis / discussion points for each topic presented in the Results section of Reports 1 and 2, but a more general overview of these factors and their influence is presented in the Discussion sections of each report. The analysis/discussion points in this document refer to the non peer-reviewed literature only.

Health topics

Smoking cessation

Relevant finding from peer-reviewed literature:

- Community pharmacists trained in behaviour change methods are effective in helping clients stop smoking (B1).

Key finding from non peer-reviewed literature:

- Training increases knowledge, self-confidence and positive attitude of pharmacists and their staff in relation to smoking cessation (B1).

The systematic involvement of other pharmacy staff in service provision was a feature of Sinclair's trial of the effect of training (B1: Sinclair 1997, p65). Pharmacy staff and pharmacists were invited to attend joint training events with the intention of developing a practice team approach to the service. Training significantly increased knowledge, self-confidence and positive attitudes about the outcome of counselling in intervention teams compared with controls.

Coronary heart disease – the use of aspirin in prevention

Relevant findings from peer-reviewed literature:

- 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).

Key findings from non peer-reviewed literature:

- The pharmacist is perceived by pharmacy users to be an appropriate potential source of advice on aspirin and heart disease (C1).
- Pharmacists are not perceived by patients taking aspirin to be currently providing the advice they need (C1).
- Patients taking aspirin prophylactically have unmet information needs that could be provided for by community pharmacists (C1).

The pharmacist was found to be considered a highly appropriate source of advice on both aspirin and coronary heart disease (CHD) prevention in a telephone interview study with 108 people receiving aspirin (C1: Kinghorn 1998, p65). However, pharmacists were not considered to be providing this service currently, and perceived lack of privacy in pharmacy premises was an issue. The research identified information needs in relation both to aspirin itself and CHD and its prevention.

Analysis / discussion point:

The research findings show potential benefit from a whole staff approach in community pharmacy, although there are no comparative data when pharmacists alone have provided the service. Further research into the effects of community pharmacy team approaches on service provision capacity, quit rates and number of people setting a 'quit date' is needed.

Analysis / discussion point:

The research findings suggest that patients taking aspirin prophylactically need more information and advice than they receive at present and would find the community pharmacist an acceptable source for this. Pharmacy users, however, report not receiving this advice possibly because patients are reluctant to ask for further information, but also perhaps because a lack of privacy was cited as an issue by some. Given the clear evidence of benefit from prophylactic aspirin use in the prevention of CHD and that monitoring of the use of aspirin purchased over the counter from community pharmacies is feasible, primary care organisations should be aware of how community pharmacy-based services might be integrated into local service provision as a means of reducing rates of heart disease.

The findings indicate patient information needs that could be met through pharmacies.

Drug misuse

Relevant findings from peer-reviewed literature:

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

Key findings from non peer-reviewed literature:

- Most drug misusers value community pharmacy-based services highly (B3).
- Practising pharmacists appear to have more negative opinions about drug misusers than undergraduate pharmacy students (B3).
- Positive pharmacist attitudes are correlated with higher service provision for drug misusers (B3).
- Training for pharmacists needs to include skills in translating technical terms into a suitable language for drug misusers (C1).

Three studies were identified, the first investigated the attitudes of pharmacy undergraduates, pharmacists and clients towards the pharmacist's role in HIV and drug misuse (B3: Sheridan 1995, p66), the second described client queries addressed to a pharmacist in a primary care drugs agency service (C1: Scott 2000, p67) and the third a study of community pharmacists and drug users' perspectives on service provision (B3: Matheson 1999, p66). Pharmacy undergraduates and practising pharmacists were found to have positive professional opinions and some negative personal opinions about HIV and drug misuse. The practising pharmacists tended to have more negative personal opinions, suggesting an effect from practice experience. Drug information queries from drugs agency workers formed the most frequent

Analysis / discussion point:

The research has identified a range of issues from service user and provider perspectives that have implications for professional education and training of pharmacists and for the planning and organisation of services. Understanding the reasons for negative attitudes from pharmacists not involved in service provision will require the collection of evidence-based data to support or refute pharmacist perceptions. Continued feedback from service users can supply an important part of this.

category of requests to the pharmacist, with numbers slightly higher for prescribed than non-prescribed drugs (C1: Scott 2000, p67). The key specialist skill required was reported to be translating technical information into terms used as part of the 'drug culture'.

In a national study of attitudes of Scottish community pharmacists and their practice in relation to services for drug misusers, a postal questionnaire and interviews were used. The questionnaire mapped provision of services by community pharmacies and explored pharmacists' attitudes. More positive attitudes were correlated with higher levels of service provision. Pharmacists had concerns about the effects on other customers of service provision for drug misusers. Drug misusers valued services provided by community pharmacies. The study showed the importance of the relationship between pharmacists, their staff and service users. Some drug misusers reported negative experiences that had increased their feelings of stigma (B3: Matheson 1999, p66).

Sexual health

Relevant findings from peer-reviewed literature:
none relevant.

Key findings from non peer-reviewed literature:

- Public interest in the availability of advice on contraception and safe sex through pharmacies is high (B3).
- Quality and confidentiality were identified by pharmacy users as important considerations in selecting a pharmacy for advice on women's health (B3).
- Pharmacists express support for involvement in promoting safer sex and contraception but are rarely asked for such advice and are reluctant to offer it (B3).
- Male pharmacists perceive themselves as less knowledgeable and more embarrassed than female pharmacists in discussing women's health issues (B3).

Analysis / discussion point:

The 'grey' literature confirms there is a desire by the public for easy access to information on both contraception and safer sex (an important finding in its own right set against a backdrop of increasing rates of infection in certain sexually transmitted infections and HIV/AIDS) and that they would be prepared to receive this advice from pharmacists. In comparison, the extent to which pharmacists can offer advice appears to be limited by their training (in particular, how comfortable they feel talking about sexual health issues) and their willingness to respond to enquiries. Health service commissioners need to consider

Two studies explored the community pharmacist's role in sexual health issues including safer sex and contraception (B3: Campbell Keegan 1992, p67; B3: Hughes 2000, p68). Although 86% of pharmacists thought that pharmacists had an important role in promoting safer sex and contraception, almost three-quarters reported being asked for advice on contraception less than once a week. The researchers noted that pharmacists generally took a reactive role, providing advice when asked (B3: Campbell Keegan 1992, p67). Public interest in the availability of advice from pharmacists was high, with 64% agreeing that they would like more advice from the pharmacist on contraception and safer sex (B3: Campbell Keegan 1992, p67). In Hughes' (2002) study, involvement in sexual health promotion was found to be limited and to occur entirely as a result of customer queries. Many of the community pharmacists who took part felt uncomfortable with this area of advice.

Community pharmacists' knowledge of and attitudes towards women's health were investigated in a study of pharmacists and users (B3: McAree 2001, p69). Pharmacists, completing a postal questionnaire, reported that they were not embarrassed to discuss many sexual health issues although some concerns were expressed about confidence and knowledge deficits. Male pharmacists perceived themselves as less knowledgeable and more embarrassed than did females. Users identified factors that might influence their decision about whether to use a community pharmacy including quality and confidentiality.

Emergency hormonal contraception

Relevant findings from peer-reviewed literature:

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

how pharmacies might play a greater part in national and local sexual health strategies and also in reducing teenage pregnancy rates. Pharmacists' access to up-to-date postgraduate training that incorporates and encourages networking with other local service providers is likely to be crucial in increasing pharmacists' confidence in dealing with these issues appropriately and effectively.

Key findings from non peer-reviewed literature:

- Pharmacy supply of EHC enables most women to receive EHC within 24 hours of unprotected intercourse (B3).
- Community pharmacies are highly rated by women as a source of supply and associated advice for EHC on prescription, by Patient Group Directions or over the counter sale (B3).
- A small minority (10%) of women choose pharmacy supply of EHC in order to maintain anonymity (B3).
- Pharmacists report predominantly positive experiences of involvement in supply of EHC through Patient Group Direction and over the counter (B3).
- Pharmacists wish their services for supply of EHC to develop in order to meet women's needs at a local level, particularly through increased use of Patient Group Directions to supply under-16-year olds (B3).
- The role of other pharmacy staff in provision of EHC services is reported by pharmacists to be important but there are no data to enable assessment of their contribution (B3).

Six studies on emergency hormonal contraception (EHC) were identified, three explored consumer perspectives and experiences, two focused on community pharmacists and one included both. Three surveys investigated the experiences of consumer and community pharmacists one year after EHC became available over the counter (B3: Lambeth, Southwark and Lewisham Health Action Zone 2002, p69; C1: Pharmacy Alliance 2002a, p70; B3: Pharmacy Alliance 2002b, p71).

Pre-deregulation

Two focus group studies on EHC, one with 14 community pharmacists (B3: Seston, 2000, p72), the other with 10 groups of users (B3: Edwards, 2000, p72) were reviewed. Both were conducted prior to the deregulation of EHC from prescription only to pharmacy medicine status. Pharmacists accorded EHC a special status in comparison

to other POM to P (prescription only medicine to pharmacy medicine) switches and supported mandatory training. Users were positive about the POM to P switch increasing accessibility and convenience. The consumer study identified the questions that women had about safety and effectiveness of EHC together with 'myths' about how often EHC could be taken and its effect on future fertility. Another study explored the attitudes of community pharmacists to pharmacy supply of EHC as part of wider research on the role of pharmacists in contraception and sexual health advice (B3: Hughes 2000, p68). Community pharmacists saw more scope for involvement in EHC supply than in other aspects of contraception. Pharmacists' reasons for support for EHC supply included a perceived increase in their status as well as a business opportunity.

A study of consumer and pharmacist perspectives on supply of EHC in the first Patient Group Direction scheme in Manchester included a questionnaire and focus groups with scheme users, interviews with pharmacists and 'mystery shopper' visits to pharmacies (C1: Anderson *et al* 2001, p70). The scheme was highly-rated by users, who valued the enhanced access to treatment. Most (85%) were content with the level of privacy available. Similarly most were satisfied with perceived confidentiality of the consultation, although those under 19 years of age expressed more concerns about this aspect. Some scheme users had found difficulty in identifying which pharmacies provided the service and when they were open, indicating a need for more effective publicity. Pharmacists were generally positive about their involvement, viewing the scheme as valuable both to its users and to the profession of pharmacy. Some pharmacists expressed concerns about the increased workload generated by the scheme and about different remuneration policies of pharmacist employers.

Post-deregulation

User views

Women purchasing EHC, receiving it on prescription or through a Patient Group Direction were asked to

complete a questionnaire by the pharmacist one year after EHC was deregulated to a pharmacy medicine (C1: Pharmacy Alliance 2002a, p70). From 250 pharmacies that participated in the survey, 785 women (30%) returned completed questionnaires. The results showed that just over half of the EHC was supplied as an NHS medicine, either as a prescription (42.4%) or under a Patient Group Direction (13.6%), compared to 44% purchasing EHC over the counter. Almost three-quarters (71%) of the women accessed EHC within 24 hours after unprotected intercourse, an important consideration as the efficacy of EHC is time-dependent, being most effective if taken within 24 hours after intercourse. There was a high level of satisfaction with the amount of advice and information received from the pharmacist. Pharmacies were highly rated as a suitable place to obtain and discuss EHC. Approximately one in ten women cited anonymity as a key reason for pharmacy purchase of EHC.

Women who had accessed EHC through a community pharmacy Patient Group Direction scheme in one area of London were surveyed as part of the evaluation of the programme (B3: Lambeth, Southwark and Lewisham Health Action Zone 2002, p69). In total 315 (20%) women returned the survey questionnaire, which was distributed through pharmacies participating in the scheme. Overall 98% of user respondents were 'Satisfied' or 'Very satisfied' with the service. The majority (90%) had felt 'Comfortable' or 'Very comfortable' discussing their request with the pharmacist. Overall one-quarter of respondents had concerns about confidentiality with the proportion being higher in women under 20 years of age.

Pharmacist views

In a national survey of community pharmacists' experience of selling and supplying EHC 1426 (64%) responded, of which 94% worked regularly in the pharmacy from which the survey was completed (B3: Pharmacy Alliance 2002b, p71). Almost all pharmacists (98.9%) said they would supply EHC on prescription and 89.4% said they would sell it over the counter. Overall 20% of respondents were already participating in a

scheme to provide EHC through a Patient Group Direction and a further 51% said they would be willing to do so. These figures show a high level of commitment from pharmacists to the supply of EHC and demonstrate scope for extending Patient Group Direction supply.

The survey report was able to compare pharmacists' responses with those from a previous questionnaire in 1997. In the current survey pharmacists disagreed that over the counter availability had resulted in increased promiscuity or sexual activity, a concern that significant numbers had expressed in 1997. In addition, pharmacists did not agree that they had found it difficult to deal with teenagers' requests for EHC, allaying another concern expressed in 1997. These findings demonstrate that practical experience of supplying EHC over the counter showed previous concerns to be unfounded. Instead pharmacists felt that over the counter availability of EHC had provided an opportunity to develop new counselling skills and 91% reported undertaking training to prepare for their new role with EHC.

The survey also asked about pharmacists' views on supplying EHC to those under 16 years of age. While respondents were not in favour of supplying EHC to under-16s as an over the counter medicine, they did not agree that all under-16s requesting EHC from the pharmacy should be referred elsewhere. These findings suggest that pharmacists wish to use their professional judgement when supplying EHC and this is further confirmed by their support for the supply of EHC via Patient Group Direction to females aged under 16 years. However, of the 284 pharmacists involved in Patient Group Direction schemes, 66% (136) reported that under-16s were excluded from their local scheme. In addition, respondents agreed that the price of over the counter EHC was a deterrent to women purchasing it. Overall the findings suggest that pharmacists believe that improved access to EHC is needed for some women through NHS supply under Patient Group Direction. The survey showed that pharmacists are actively referring women for whom over the counter EHC is inappropriate to GPs (90%) and

family planning clinics (60%). Pharmacists reported receiving little feedback about either positive or negative experiences with EHC.

Pharmacists supplying EHC through a community pharmacy Patient Group Direction scheme in one area of London were surveyed as part of the evaluation of the programme (B3: Lambeth, Southwark and Lewisham Health Action Zone 2002, p69). The pharmacists identified the important role of counter staff in managing waiting customers. They reported increased professional self-esteem as a result of taking part in the Patient Group Direction scheme.

Immunisation

Relevant findings from peer-reviewed literature:

- 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).

Key findings from non peer-reviewed literature:

- Pharmacy patient medication records are effective in identifying and flagging 'at risk' patients to prompt and enable pharmacist intervention for immunisation (B3).

A feasibility study was conducted of identification of 'at risk' patients for influenza immunisation through community pharmacies (B3: Williams *et al* 1993, p73). A systematic method using pharmacy patient medication records was effectively used to identify such patients. A questionnaire given to those patients identified showed that a significant percentage had not previously had influenza immunisation. In comparison, an opportunistic method based on the presentation of influenza-like symptoms and purchases of relevant over the counter medicines was less effective. The response from pharmacists using the opportunistic method was low and feedback suggested this was due to lack of remuneration.

Analysis / discussion point:

The findings from the non peer-reviewed literature demonstrate the high level of user and pharmacist acceptability of the pharmacy supply of EHC and also the effectiveness of increased access within the time-sensitive period (72 hours). There is an expressed wish from pharmacists to be supplying more EHC under Patient Group Direction, particularly to those under 16 years of age and for women who find the cost of over the counter supply prohibitive. In addition, pharmacy supply of EHC under Patient Group Direction would be likely to lead to pharmacy-based services becoming more integrated with other local services and could potentially increase referrals between major service providers. Further monitoring is needed into the use of, and outcomes of, pharmacy supply of EHC under Patient Group Direction.

Analysis / discussion point:

The literature demonstrates the potential effectiveness of systematically using pharmacy patient medication records to identify high risk individuals for immunisation. It is recommended that piloting of this system should begin as soon as possible in the UK.

Head lice

Relevant findings from peer-reviewed literature:

none relevant.

Key findings from non peer-reviewed literature:

- Pharmacists and health professionals appear positive about the service and express a wish for it to continue (B3).
- The majority of head lice management programmes require proof of infestation before treatment is supplied and between one-quarter and one-third of consultations result in no treatment being recommended (B3).
- Where treatment is supplied, community pharmacists' adherence to the local formulary appears to be extremely high (approaching 100%) (B3).
- User feedback shows that head lice management services are generally well-received, but between 18% and 34% of scheme users report having some concerns about privacy in the pharmacy during the consultation (B3).
- Work is needed locally to ensure messages about treatment of head lice infestation are consistent between pharmacists, GPs, practice staff and schools (B3).
- There is some evidence that the cost of over the counter head lice treatments is a barrier to appropriate use. Community pharmacy supply of treatment on the NHS should be explored in areas where this applies (C1).

Two reports evaluating community pharmacy provision of head lice management were reviewed (B3: Philips *et al* 1999, p73; B3: National Pharmaceutical Association 2001, p74). A total of 5710 users accessed a scheme involving 32 community pharmacies in three Primary Care Groups in the three-month evaluation period (B3: Philips *et al* 1999, p73). Most consultations were on behalf of children (76.8%) and were by females (67.4%). Almost all (94%)

of scheme users were exempt from prescription charges. Proof of infestation was required before treatment was supplied and no treatment was recommended in one-third of consultations. Where treatment was supplied by the pharmacist it conformed to the local formulary on 99% of occasions. The scheme was well received by users, although 18% reported feeling embarrassed to discuss head lice with the pharmacist. GPs and school nurses rated the scheme highly.

A total of 1847 clients accessed a community pharmacy-based head lice management scheme covering two Primary Care Groups and 32 pharmacies (later extended to 47) in Sunderland during a seven-month period (B3: National Pharmaceutical Association 2001, p74). Proof of infestation was required for treatment and was shown in 77% of consultations, avoiding the use of chemical insecticides in 415 cases. The scheme was well received by users and was rated 'good' or better by 82% of users. Roughly one-third said they were not able to have a private discussion in the pharmacy. Three-quarters of users said they intended to use regularly the head lice comb they had been given as part of the scheme. Almost three-quarters of GPs reported that the service had reduced the amount of time they spent dealing with head lice infestation. Roughly one-third of GPs reported they 'rarely' (31%) or never (3%) saw the client when prescribing head lice treatment. Over 90% of health professionals wanted the service to continue and 66% of GPs wanted it to be extended to cover other conditions. Pharmacists reported that 67% of initial consultations took between 5 and 10 minutes and 93% said they would be happy to continue the service.

Communication to enable consistency of information about head lice treatment was studied in a survey of community pharmacists, head teachers of primary schools, school nurses and GPs in one locality (B3: Thomas 2000, p75). The response rates for different groups ranged from 65–90%. Schools were found to provide information to parents that was sometimes out of date and/or at odds with that being given by health professionals. Some of the survey groups had different

preferences for treatment types, suggesting that recommendations would be likely to differ. Thomas concluded that there was considerable potential for parents to be presented with conflicting and confusing information and identified a need to develop a consistent approach.

In a community pharmacy-based study, staff in 34 pharmacies recorded details of requests for head lice products on prescription and over the counter (C1: McGovern 2001 p75). Among 184 customers who completed a questionnaire, 69% said they intended to repeat the treatment application and 38% said they intended to treat the whole family or all children regardless of whether head lice were found. Quantities prescribed and purchased were lower than those recommended in relevant guidelines. These findings raise concerns that head lice treatments may not be optimally used, with risks of treatment failure and the development of resistance.

Oral health

Relevant findings from peer-reviewed literature:

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

Key findings from non peer-reviewed literature:

- Opportunities for pharmacists to recommend sugar-free medicines for children are limited as most requests from customers are for a named medicine (C1).
- Training and participation in oral health promotion activities appear to increase pharmacists' intent to try to change users' behaviour (C1).
- Most pharmacy customers say they believe sugar-free medicines are important for children (C1).
- A more proactive approach by pharmacists is required to maximise opportunities for oral health development (C1).

Analysis / discussion point:

The use of community pharmacy-based services to treat head lice infestations appears to be well-received by users and other health professionals, although concerns about privacy are expressed by a significant minority of users. The finding that no treatment was provided in one-third of cases indicates that pharmacists followed the protocol requirement for examination and proof of infection. No evidence of effectiveness of treatment, or prevention of infestation or re-infestation were reported in the studies reviewed. Further research to assess the effectiveness and cost-effectiveness of these pharmacy-based interventions is required together with the need for local planning and co-ordination of treatment services and messages.

In a study of community pharmacists' attitudes and practice relating to sugar-free medicines, baseline interviews were followed by a pharmacy-based health promotion campaign on this topic together with educational events (C1: McGovern *et al* 1999, p76). On re-interview, pharmacists' attitudes towards sugar-free (SF) medicines were more positive. Many pharmacists reported taking part in the health promotion campaign, participating in postgraduate education on oral health or reading relevant articles.

Data collection in the same study on sales of over the counter paediatric medicines showed that most requests were made for a named medicine and the pharmacist's recommendation was sought in around 15% of cases. The percentage of pharmacists indicating they would attempt to persuade a purchaser of a sugar-containing medicine to switch to a SF product had increased in the follow-up interviews. The authors noted that improvements had occurred due to the educational and campaign activities. They concluded that further improvements could be made and that greater proactivity by pharmacists would be needed (C1: McGovern *et al* 2000, p76).

Mental health

Relevant findings from peer-reviewed literature:
none relevant.

Key findings from non peer-reviewed literature:

- Community pharmacies are used for the purchase of products to reduce stress and anxiety (C1).
- Most (87%) pharmacy users did not regard pharmacists as their preferred source of advice on stress and anxiety (C1).
- Around half of pharmacy staff were aware of relevant local self-help groups (C1).
- Pharmacy users take up leaflets on topics relating to stress and anxiety, with leaflets on sleep problems and relaxation being most commonly selected (C1).

Analysis / discussion point:

There appears to be some potential for community pharmacy staff to be further involved in the provision of services to promote oral health. Some limitations on this role, however, appear to be linked to pharmacy user requests for a specific named medicine that potentially presents a conflict of interest between the pharmacist's role as a health professional versus their business interests. This is an issue that needs to be addressed locally through training and remuneration of services. Indeed, pharmacists in the study reviewed seemed to be persuaded by training to try to encourage customers to purchase a SF alternative.

Analysis / discussion point:

Although a highly-sensitive topic, there appears to be potential for pharmacy staff to offer support and advice in relation to mental health issues. At present the majority of pharmacy-based support appears to be linked to medicine sales. Pharmacy users, however, are also looking for more information and additional sources of help as exemplified by leaflet uptake. In addition, some staff have knowledge of relevant local services but it is not clear whether this information is easily accessible to pharmacy users. As pharmacists already provide and successfully offer help on other

The involvement of pharmacy staff in the management of stress and anxiety was the subject of a pilot study in one locality (C1: Reilly *et al* 2001, p77). A training evening was held, and a resource manual was produced and distributed to all pharmacies. Pharmacy customers were asked to complete a questionnaire on frequency of symptoms, any treatments purchased and preferred sources of advice; 150 did so (90% response rate). The GP was the preferred source of advice on stress and anxiety (76%), with friends (36%) and the pharmacist (13%) next. However, 33% of respondents reported that they had purchased a remedy to help their symptoms, indicating opportunities for pharmacy staff to intervene (but interventions, other than the sale of a product, were not recorded). Just over half of the 24 pharmacy staff interviewed were aware of local self-help groups and might have been able to refer to them (although the study did not record whether they intervened or not). Leaflet uptake during the study ranged from 41 to 155 per pharmacy with the most popular topics being sleep and relaxation guides.

Prevention of transmission of infection

Relevant findings from peer-reviewed literature:
none relevant.

Key findings from non peer-reviewed literature:

- Pharmacists generally have positive attitudes towards involvement in prevention of transmission of infection (B3).
- Pharmacists knowledge about transmission of HIV, hepatitis B and hepatitis C is variable (B3).

A survey of community pharmacists found positive attitudes towards involvement in activities and services to prevent transmission of HIV and hepatitis B and C (B3: Watson *et al* 2002, p77). Pharmacists' knowledge about blood-borne diseases was found to be variable. The main

sensitive issues (e.g. emergency hormonal contraception and head lice management) it is feasible that support could be extended to mental health issues, however, the common barriers to receiving advice on sensitive topics (especially privacy and confidentiality) would need to be addressed before further publicising these services. In addition, pharmacy-based services should be integrated into other relevant local services, further training provided and outcomes monitored.

Analysis / discussion point:

Pharmacists potentially have a significant role to play in preventing and reducing the transmission of infections (see also sections on Sexual health and Immunisation), however, current evidence suggests their involvement is mainly limited to opportunistic travel health advice (see for example, Report 4).¹ The main barriers to their increased involvement are similar to those cited for health development activities in general, in particular a lack of time, remuneration and of a private area for consultation, however the importance of the topic concerned and its implications for public health are such that further exploration and research into their potential role is urgently required.

¹ Local Pharmacy Health Development Projects – Testing Models of Implementation in Community Pharmacy (2002). Unpublished work available on request from pharmacyhealthlink@rpsgb.org.uk or 020 7572 2265.

barriers to extended involvement were perceived by the pharmacists to be time, availability of a private area and lack of remuneration.

Accidental injury prevention

Falls prevention

Relevant findings from peer-reviewed literature:

none relevant.

Key findings from non peer-reviewed literature:

- A pharmacy-based osteoporosis screening service involving pharmacist and nurse input was found to be feasible and identified women at risk of osteoporosis (B3).
- Women using the scheme valued the accessibility offered by community pharmacy (B3).

One report of a community pharmacy-based osteoporosis screening service was reviewed (B3: Martin-Hamblin-GfK 2002, p78). The study was a small scale pilot in one pharmacy, where 228 women completed a risk assessment questionnaire. Of these, 49 were found to be low risk and the remaining 179 had a bone scan conducted by a nurse in the pharmacy, from which 36 were found to be osteoporotic and were referred to the GP for treatment. Most users (78%) were either invited to take part by pharmacy staff or self-referred after seeing a project poster in the pharmacy. While three-quarters rated the pharmacy as a more convenient location than their doctor's surgery this did not necessarily translate into intended future service use. Just over half the women said the convenience of the pharmacy would make them more likely to use the service, suggesting that other factors played an important part. Most users rated pharmacy staff as very/extremely accessible (90%) and professional (83%). The nurse's input was also highly valued, with over 90% rating as very/extremely knowledgeable and as giving very/extremely clear explanations.

Medicines-related injuries

Relevant findings from peer-reviewed literature:

none relevant.

Key findings from non peer-reviewed literature:

- Requests to patients to return unused medicines to the pharmacy result in large quantities of excess medicines being identified (C1).
- Changes in therapy, the death of patients and adverse effects are important reasons why excess quantities of medicines occur in people's homes (C1).
- Discussions between local health professionals appear to be useful in making changes to prescribing frequency to prevent the accumulation of excess medicines (C1).

A study in which data were collected on unwanted medicines returned to community pharmacies showed that the main reasons for return were a change in therapy, the death of the patient and adverse reactions (C1: McGovern *et al* 2001, p78). The most commonly returned medicines were for treating cardiovascular conditions. The authors note that there was some evidence of excessive prescribing. The results of the study were subsequently discussed locally and changes in the frequency of prescribing were agreed.

Factors affecting the effectiveness of community pharmacy health development activity

Training²

Relevant findings from peer-reviewed literature:

- Community pharmacists trained in behaviour change methods are effective in helping clients stop smoking (B1).
- Training in smoking cessation techniques increases

² See sections on Pharmacists (p44), Smoking cessation (p17), drug misuse (p19) and oral health (p29) for more details of studies reviewed.

Analysis / discussion point:

Pharmacists and their staff have a substantial amount of contact with older people (who often have a high medicines intake) and people who require repeat dispensing during the normal course of their work (see section on Public use of community pharmacies, p41). This places them in a good position to be able to identify where the use of medicines may be predisposing the user, or carer, to accidents in the home or elsewhere. The review of medicines for high or frequent users (as required by national and local policies) presents an ideal opportunity for the pharmacist to initiate a discussion with the user or carer to identify potential risk factors and help determine solutions to minimise these risks. Further research into the pharmacists' role in preventing accidents in other target groups, for example children and young people, is also warranted.

pharmacists' effectiveness in achieving higher quit rates (B1).

- Training in skin cancer prevention enhances knowledge and increases the opportunistic offering of advice to clients by pharmacists (B1).
- Training increases the length of consultation between pharmacist and clients on health issues (B2).
- Training in health improvement increases the time that community pharmacists spend in consultation with pharmacy users and also increases user satisfaction (B3).
- Specific training needs have been identified for pharmacists participating in pharmacy-based needle-exchange schemes (C1).

Key findings of non peer-reviewed literature:

- Training has positive effects on the consultation and information-giving behaviour of community pharmacy staff (B1).
- Training increases knowledge, self-confidence and positive attitudes of pharmacists and their staff in relation to smoking cessation (B1).
- Postgraduate training produces positive changes in both attitudes and behaviour of community pharmacists in relation to health improvement activities (B3).
- Training for pharmacists needs to include skills in translating technical terms into a suitable language for drug misusers (C1).
- Training and participation in oral health promotion activities appear to increase pharmacists' intent to try to change users' behaviour (C1).

Use of pharmacy patient medication records³

Relevant findings from peer-reviewed literature:

- Using pharmacy patient medication records to

Analysis / discussion point:

The research evidence identifies the effectiveness of training in changing pharmacists' practice behaviours. Training also affects pharmacists' confidence and attitudes and there is evidence that pharmacists who have undergone training will have increased involvement in health improvement activities. It is therefore key to the successful implementation of community pharmacy-based health improvement programmes.

³ See section on Immunisation (p26) for details of studies reviewed.

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).

- 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).
- Information routinely kept by community pharmacies on dispensed medication enables case-finding of patients for interventions in lipid management (C1).

Key findings from non peer-reviewed literature:

- Pharmacy patient medication records are effective in identifying and flagging 'at risk' patients to prompt and enable pharmacist intervention for immunisation (B3).

Design and use of pharmacy premises

Privacy,⁴ anonymity⁵ and confidentiality⁶

Relevant findings from peer-reviewed literature:

- Most pharmacy users perceive there is sufficient privacy in the pharmacy to discuss even sensitive subjects (B2).

Key findings from non peer-reviewed literature:

- Community pharmacists and users appear to have different perceptions of what constitutes acceptable facilities to maintain privacy (B3).
- Pharmacy users' perceived concerns about privacy are generally not borne out in their reports of actual experience (B3).
- Most users of potentially sensitive pharmacy services (e.g. emergency hormonal contraception; head lice management) report adequate facilities for privacy in

Analysis / discussion point:

Research findings show the potential of community pharmacy patient medication records to identify and target specific groups of patients. Primary care organisations need to consider how this potential can be harnessed to contribute to achieving local health targets.

4 In this report the definition of 'privacy' used is: 'Being able, or having the facilities, to hold a private discussion in the pharmacy at a convenient time for the client without being overheard.'

5 In this report the definition of 'anonymity' used is: 'Where the client uses the pharmacy for advice or services with the explicit intention of remaining unidentified and/or untraceable.'

6 Pharmacists have a professional duty of confidentiality to all their clients, including not releasing information gained from a consultation to the client's doctor without the client's express permission.

community pharmacy with a consistently sizeable (up to 20%) minority expressing concern (B3).

- A sizeable minority (up to 20%) of women obtaining emergency hormonal contraception from community pharmacies reported having concerns about confidentiality and this was higher among those under 19 years of age (B3).

User views

The results of a self-completion questionnaire study of users suggests that the public may have a different view of what constitutes appropriate facilities to enable private discussions. The researchers found that 'two-thirds of the respondents would like to be able to talk to the pharmacist in private, while only 5% had found and used such facilities to date' (B3: Aston University/MEL Research 1991, p79).

In her study of the health information needs of people buying aspirin for heart disease prevention, or receiving it on prescription, Kinghorn concluded that 'pharmacy premises were considered by some to lack privacy' (C1: Kinghorn 1998, p65).

The most important factor for users considering a pharmacist for advice in a study on contraception and safer sex was the availability of a quiet area, cited by 41% of the 224 respondents (B3: Campbell Keegan 1992, p67). Quality and confidentiality of pharmacists' advice were identified by users as influencing possible use of a community pharmacy advisory service on women's health (B3: McAree 2001, p69).

In a large interview study with pharmacy users, one-third said they would be willing to ask about a sensitive or personal problem in the pharmacy. Around two-thirds said there was insufficient privacy to discuss a sensitive problem in the pharmacy and only 18% believed that privacy was adequate. Women were significantly more likely than men to say that they would discuss a sensitive problem with the pharmacist (C1: Coggans *et al* 2000, p79).

A study of user attitudes towards community pharmacy supply of emergency hormonal contraception (EHC) prior to deregulation from POM to P (prescription only medicine to pharmacy medicine), or supply on Patient Group Direction, involved 10 focus groups with women who had used, or might use, EHC (B3: Edwards 2000, p72). While women were positive about pharmacy supply of EHC, the open pharmacy environment was a 'major concern'. The same study also found that participants were concerned about confidentiality in the community pharmacy setting and about what records would be kept of the supply. It is not possible to tell from the findings the distribution of these concerns between women who were expressing their perceptions and those who had used EHC. However, when pharmacy users are asked about their actual experience rather than perceptions the results are quite different as the results of consumer studies conducted prior to and since wider access through pharmacies to EHC demonstrate.

In a study of women who had all obtained EHC from pharmacies by Patient Group Direction, most were satisfied with the level of available privacy, although approximately one in five felt there was insufficient privacy for their discussion with the pharmacist (B3: Lambeth, Southwark and Lewisham Health Action Zone 2002, p69).

In a national survey of womens' experience of obtaining EHC through community pharmacies, the setting was highly rated as a suitable place to obtain and discuss EHC by women receiving it on prescription, Patient Group Direction or through over the counter purchase (B3: Pharmacy Alliance 2002*b*, p71).

These findings suggest that many women find it acceptable to discuss this sensitive subject in a community pharmacy. The same study found that most women did not have concerns about confidentiality and pharmacy supply, although roughly one-quarter of women did.

Most (80%) women using a community pharmacy-based osteoporosis screening service felt they were treated with 'complete' privacy and confidentiality, with 18% reporting a 'degree of privacy' and 2% giving a negative rating (B3: Martin-Hamblin-GfK 2002, p78).

Just over two-thirds (68%) of the 600 pharmacy customers interviewed in a Scottish study believed their discussions in the pharmacy would be confidential. Women were significantly more likely than men to say that confidentiality would be maintained (C1: Coggans *et al* 2000, p79).

Two reports of community pharmacy-based head lice management schemes included an assessment of users' perceptions of privacy. In the first study, 17.6% of 336 users reported being embarrassed to speak to the pharmacist about head lice (B3: Philips *et al* 1999, p73). In the second study, 42% of users agreed that they were able to discuss their problem in private, 34% said they were not able to do this and 24% were 'not bothered' about this aspect (B3: National Pharmaceutical Association 2001, p74).

Pharmacist views

The availability of a 'quiet area' in the community pharmacy to provide a setting for private discussion was explored in several studies. In a large survey in the late 1980s, 62% of community pharmacist respondents reported that their premises had a suitable area or room for private discussion and one in four pharmacies reported having a 'consultation room' (B3: Shafford & Sharpe 1989, p80).

Methods of provision of health information

Use of leaflets

Relevant findings from peer-reviewed literature:

- Awareness of pharmacy-based leaflets on health topics is higher for those clients taking prescribed medicines (B3).

Analysis / discussion point:

Feedback from pharmacy users demonstrates that pharmacy-based EHC and head lice management services are highly rated. However, although most users report finding the level of privacy in pharmacies acceptable, a significant minority do not. In addition, around one in five women receiving EHC were unsure whether the information would be kept confidential. These findings suggest that although community pharmacists can play a valuable role in providing these services and believe they currently have adequate facilities to do so, there is a need to be aware that a significant minority of the public still report concerns over privacy and confidentiality. Suggested action to address these issues would include reviewing the facilities available for private discussion in community pharmacies and greater publicity about the terms and conditions for confidentiality that apply to pharmacists and their staff.

Key findings from non peer-reviewed literature:

- Community pharmacists consider leaflets to be an important component of their health improvement toolkit (B3).
- Passive displays of leaflets may be missed by half of pharmacy customers (C1).

The display and use of health promotion leaflets was included in several studies. In Shafford and Sharpes' large survey of community pharmacists 56% of respondents believed leaflets to be of 'great' or 'very great' importance and 45% reported displaying them (B3: Shafford & Sharpe 1989, p80). The findings of that study suggested that pharmacists gave a higher priority to displaying leaflets than to providing advice on health education, indicating a preference for passive rather than active involvement. However, as passive displays of leaflets were found to be missed by nearly half of pharmacy customers (B3: Aston University/MEL 1991, p79), leaflet-based strategies are best viewed as supportive of medicines or health advice, or through offering an opportunity for further discussion, rather than an end in themselves.

Multimedia technology

Relevant findings from peer-reviewed literature:
none relevant.

Key findings of non peer-reviewed literature:

- Multimedia technology may be a means of engaging young and healthy pharmacy customers in health improvement activities (C1).

A small experimental descriptive study assessed the usage of a multimedia touch screen kiosk in the community pharmacy setting (C1: Hariri 1998, p81). Over 12,400 people used the kiosk in six pharmacies. Usage was much higher in supermarket pharmacies compared with others, however, the completion rate for the software used was similar in the two groups at 31% and 37%. Most users were relatively young (under 40 years) and data collected

on Body Mass Index (BMI) showed the majority to have a 'healthy' figure of 25 or less. Observation studies showed that older customers needed encouragement and a demonstration by the pharmacist before they used the kiosk. These results suggest that younger and healthier pharmacy customers are more willing and likely to use computer-based information points. The low completion rate suggests that further work is needed to develop programmes with which this younger group will engage more fully. The lower technology familiarity of older pharmacy customers and their high frequency of use of pharmacies also needs to be taken into account in designing future strategies.

Stakeholder views

Pharmacy users

Relevant findings from peer-reviewed literature:

- User feedback from pharmacy-based health improvement activities is generally very positive (B3).
- Users' awareness of community pharmacies as a source of general health advice is low (B3).
- Pharmacy users report having followed the health advice given by pharmacists with positive views on the pharmacist's input (B3).
- Most users perceive there is sufficient privacy in the pharmacy to discuss even sensitive subjects (B3).
- Community pharmacy-based supervised methadone administration services can achieve high attendance rates and be acceptable to clients (B3).
- User satisfaction with pharmacy-based immunisation services is high (C1).
- Users were generally satisfied with the emergency contraception service pharmacists provided (C1).

Analysis / discussion point:

The means of provision of health information to patients is rapidly developing with the introduction of new technologies, for example, portable touch-screen kiosks, and the public's increasing access to electronic information through the Internet. These technologies are also being applied to the NHS with the introduction and increasing use of telephone advice-lines (e.g. NHS Direct in England) and NHS advice and services via the Internet (e.g. NHS Direct On-Line). Pharmacists need to consider what are the most appropriate ways of ensuring their users have access to the information they need. This can take a variety of forms, such as written information, provided as leaflets or electronically. At the time of writing there was not sufficient evidence to suggest that one particular form was more effective than another. Instead it appears that different methods of receiving health information depend on individual user preferences and characteristics. When a pharmacist, or staff member, actively engages with a client about their health needs it is possible to determine what method of information provision might suit them best. At other times, neither pharmacy users nor the pharmacist may be able, or willing, to engage in further consultation and at these times the provision of easily accessible written, or electronic, health information should be available to those who require it.

Key findings from non peer-reviewed literature:

- Public use of community pharmacies is almost universal but is low for general health advice (B3).
- Community pharmacists are perceived as drugs experts rather than experts on health and illness (B3).
- Community pharmacies are highly rated by users as a source of supply and advice for emergency hormonal contraception and head lice management (B3).
- The actual experience of service users appears to be more positive than their perceptions of access to and value of advice and services from community pharmacies (B3).

The public's use of community pharmacies

Public use of community pharmacies is high, with 94% of respondents in a large (517 adults) interview-based survey having used a pharmacy in the previous year for one of three core reasons: obtaining prescription medicines; 'over the counter' medicines purchase; healthy lifestyles related advice (B3: BMRB 1996, p81). The ACORN (A Classification of Residential Neighbourhoods) classification was used in sampling.⁷ Reported use was for prescriptions (90% of respondents), over the counter medicines (30%) and seeking general health advice (10%). Use for general health advice was higher among women, respondents with young children and those from lower socio-economic groups. Respondents in the 'striving' ACORN group live in the poorest conditions and correspond well with those in the 'inner city' group who are the most frequent users of pharmacies. Overall 14% of respondents reported receiving unsolicited health advice from pharmacies. See Table 4.

⁷ See <http://www.caci.co.uk/pdfs/acorn2001.pdf> for more information on the ACORN classification.

**Table 4. Use of community pharmacies by ACORN
(A Classification of Residential Neighbourhoods)
categories**

Usage at least one every	Thriving	Expanding	Rising	Settling	Aspiring	Striving
Week to every 4 weeks	48%	35%	47%	53%	46%	57%
2 months to once within last year	52%	65%	53%	47%	54%	43%
Average number of times per year	12	10	12	12	12	14

The categories represent a decreasing socio-economic gradient from left to right, where 'thriving' is more affluent and 'striving' is deprived.

A health diary study of health status and use of health resources in primary care among 834 residents in 346 households found that frequency of pharmacy use was high and mainly restricted to the prescription service (B3: Hassell *et al* 1998, p82). Most people self-managed minor conditions, with 5.5% using the community pharmacy for advice. Interviews with a sub-sample of 41 diary respondents found that community pharmacists were perceived as 'a drug expert – advising on medicines not illness'.

Pro forma diaries completed by community pharmacists showed that only 3% of recorded enquiries were about general health (B3: Shafford & Sharpe 1989, p80). It was noteworthy that enquiries about general health took longer to deal with than did those about prescribed medicines or symptoms and also that they tended to be made during busy dispensing periods.

Public perceptions of the pharmacist's role in giving health advice

Most pharmacy users in an interview survey with 592 customers in six pharmacies participating in the Barnet High Street Health Scheme believed that the doctor was the best and most convenient person to go to for advice about staying healthy (B3: Anderson 1997, p82). Although 40% of users believed that it was the 'usual

job' of the pharmacist to advise on staying healthy, only 15% had ever asked for such advice.

Interviews with 600 customers in 30 community pharmacies in Scotland showed a clear distinction in the proportion willing to seek advice on medicines-related and non medicines-related topics (Table 5). When asked why they were not willing to discuss healthy eating with the pharmacist, two-thirds said they already knew enough about it. However, 22% of respondents said either that they did not see this as part of the role of community pharmacy or that it had not occurred to them that pharmacies could provide such advice (C1: Coggans *et al* 2000, p79).

Table 5. Willingness of pharmacy customers to discuss health topics with the pharmacist (n = 600)

Health topic	Percentage of customers agreeing
Prescribed medicines	86
Minor health problems	84
Smoking cessation	66 ^a
Sensitive topics	33
Healthy eating	32
Exercise	20

Source: Coggans *et al* 2000.

^aOf smokers prepared to contemplate quitting

Over a quarter of the 224 respondents in a questionnaire survey to determine pharmacy users' views of health information leaflets in pharmacies reported difficulty in identifying the pharmacist and a similar proportion agreed that 'the pharmacist prefers to keep out of sight'. The researchers concluded that 'there are still many people who are unaware of the pharmacist's role as an adviser on general health matters' (B3: Aston University/MEL Research 1991, p79). None of the respondents in a survey of 224 users spontaneously suggested that they would go to the pharmacist for advice on contraception or safer sex (B3: Campbell Keegan 1992, p67).

Many of the 39 pharmacists interviewed in a qualitative study believed that the public 'did not recognise the extent of their training and skills and see them as

shopkeepers, not health educators' (B3: Anonymous 1993, p83). Pharmacists who participated in a large questionnaire study were reported to be 'keen for the public to be better educated about the role of the pharmacist in healthcare in general' (B3: BMRB 1993, p84).

Users' experience of advice and services in the pharmacy setting

Several studies were identified that obtained feedback from users about advice and services actually received, rather than their perceptions of, or attitudes to, receiving them.

Client feedback on the pharmacy supply of emergency hormonal contraception (EHC) was obtained in two studies. Women receiving EHC through a Patient Group Direction in South London showed a high level of satisfaction with the service (B3: Lambeth, Southwark and Lewisham Health Action Zone 2002, p69). A high level of satisfaction with community pharmacy supply of EHC was also found in a national survey of women receiving the treatment on prescription, Patient Group Direction or purchasing it over the counter (C1: Pharmacy Alliance 2002a, p70). Pharmacies were highly rated as a place to obtain and discuss EHC. A desire for anonymity was the reason why 9.7% of women surveyed had opted for over the counter purchase of EHC.

Users who received advice on women's health in a pilot study in four pharmacies were reported to respond positively (B3: McAree 2001, p69).

One study investigated the views of clients of pharmacy drug misuse services (B3: Sheridan 1995, p66). Clients perceived pharmacists as service providers but not as a source of advice. Some clients reported positive experiences of their interactions in pharmacies but others considered themselves to be stigmatised by community pharmacists.

Pharmacists

Relevant findings from peer-reviewed literature:

- Pharmacists attach a high degree of importance to health improvement activities (B3).

Analysis / discussion point:

Use of community pharmacies for general health advice tends to be low among the public but appears to be higher among women, respondents with young children and lower socio-economic groups. People living in areas of deprivation, high unemployment or in inner cities are more frequent users of community pharmacies.

Both the public and community pharmacists believe that the advice-giving role of community pharmacists on general health issues is not widely recognised or utilised. As service developments occur it may be necessary to run local campaigns to raise public awareness of services on offer and to target those who would benefit most from increased access, such as those living in areas of deprivation or inner cities. Further research is required to investigate the use of community pharmacies by lower socio-economic groups, particularly in relation to advice-giving as well as the supply of medicines.

- 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 than proactive (B3).
- Pharmacists' concerns about being 'intrusive' in offering potentially unwelcome health advice predisposes to a reactive stance (B3).
- Pharmacists were positive about their experience of providing emergency hormonal contraception (B3).
- Pharmacy staff appear positive about promoting the role of folic acid in pregnancy but there is no evidence of the effects of intervention on behaviour (B3).
- Dispensing duties are widely reported as a key barrier to pharmacists' greater involvement in health improvement activities (B3).

Key findings from non peer-reviewed literature:

- Training has positive effects on the consultation and information-giving behaviour of community pharmacy staff (B1).
- Community pharmacists perceive health promotion activity as important but tend to spend little time on it in everyday practice (B3).
- Future roles in health improvement are largely perceived as medicines-related by community pharmacists (B3).
- Community pharmacists have concerns about the receptiveness of GPs and patients to a greater role in health improvement and thus proactivity is reduced (B3).
- Postgraduate training produces positive changes in both attitudes and behaviour of community pharmacists in relation to health improvement activities (B3).

Priorities for advice-giving

Several studies explored where health improvement featured in community pharmacists' priorities for advice-giving. When asked whether they believe that health promotion is important, most community pharmacists agree. In a postal survey only 13.5% of 1330 respondents rated health promotion as being of 'little' or 'no' importance (B3: Health Promotion Authority Wales 1991, p83). While pharmacists perceive health promotion to be important it was also noted that 'pharmacists' health promotion role is reactive not proactive' and that 'the pharmacist's role is very much oriented towards medical advice ... health promotion happens during this process (B3: Anonymous 1993, p83). However, the priority that pharmacists gave to health promotion in relation to other activities provides a different perspective. A survey of 897 community pharmacists (response rate 58%) found that respondents attached 'great importance' to advice-giving on prescribed medicines (52%); over the counter medicines (45%) and health education (18%) (B3: Shafford & Sharpe 1989, p80).

The amount of time spent by community pharmacists on health promotion activities was estimated as 5% in one study (B3: Anonymous 1993, p83) while around three-quarters of pharmacists estimated that they spent between one and three hours a week on such activities (B3: BMRB 1993, p84).

Most community pharmacists who participated in a study on contraception and sexual health saw their role as 'revolving around the provision and sale of medicines' (B3: Hughes 2000, p68). The most commonly mentioned areas for role development in the future in the same study were running clinics for diabetes and asthma, managing long-term medication, pharmacist prescribing and health promotion.

Provision of specific services

The numbers of pharmacies providing specific services were measured in a questionnaire survey of all community pharmacists in Wales (B3: Health Promotion

Authority Wales 1991, p83). The returns represented 522 pharmacy premises (response rate 67% of pharmacists) and the services provided are given in Table 6.

Table 6. Pharmacies in Wales providing specific services (n = 522)

Service Provided	Percentage
Pregnancy testing	59
Weight measurement	30
Sale of needles and syringes	29
Blood pressure measurement	15
Needle/syringe exchange	8
Cholesterol testing	0.3
Lung function testing	0.01

Source: Health Promotion Authority Wales 1991.

These figures provide a useful picture of activity at the start of the last decade and show that the majority of pharmacies were not providing any specific services related to health improvement with the exception of pregnancy testing.

Barriers to greater involvement

Two large postal surveys (B3: Health Promotion Authority Wales 1991, p83; B3: BMRB 1993, p84) provided quantitative data on community pharmacists' perceived barriers to extending their involvement in health improvement (Table 7).

Table 7. Barriers cited by community pharmacists to greater involvement in health improvement

	Health Promotion Authority Wales 1991 (n = 724)	BMRB 1993 (n = 1330)
Finance	54%	84%
Time		66%
Public apathy	34%	
Relationship with GPs	31%	
Lack of knowledge	22%	

Availability of finance and time-pressure were commonly-perceived barriers that also featured in the peer-reviewed evidence (Report 1). The Welsh data demonstrated pharmacists' concerns about the receptiveness of the public and of doctors to their health promotion activities. Perceptions of customers' response to health promotion advice were explored in a large qualitative study involving eight discussion groups and 18 individual interviews with community pharmacists (B3: Hughes 2000, p68). Pharmacists were typically not proactive in health promotion, feeling that they could only respond to customer queries rather than initiating discussions on health. Raising health promotion issues with most clients was seen as 'highly problematic' as the pharmacist had no way of knowing who might appreciate the advice and who might be offended (B3: Hughes 2000, p68).

Education and training

Undergraduate and pre-registration training

At the end of the 1980s pharmacists perceived that their undergraduate and pre-registration training had not prepared them sufficiently for a role in health improvement. Almost three-quarters of community pharmacists reported that their undergraduate education gave them 'no' or 'poor' training in advice-giving on health education topics (B3: Shafford & Sharpe 1989, p80). In relation to pre-registration training, 48% of community pharmacists stated that their training had provided them with 'no' or 'poor' training in advice-giving on health education (B3: Shafford & Sharpe 1989, p80).

An educational intervention with pharmacy undergraduates was shown to have a positive effect on knowledge about drug misuse and HIV but a lesser effect on attitudes towards providing services (B3: Sheridan 1995, p66).

Postgraduate training

A questionnaire survey of 100 community pharmacists

Analysis / discussion point:

Pharmacists' attitudes to their role in health promotion

Although the majority of pharmacists rate their role in health promotion as being important, current activity levels are low due to a reported combination of barriers including lack of remuneration, time-pressure and perceptions of a negative response to these activities by GPs and the public. However, a more recently conducted UK survey of current activity (Report 4)⁸ has revealed an explosion in local community pharmacy health improvement projects being run in conjunction with NHS primary care organisations in the following areas:

- smoking cessation;
- sexual health;
- drug misuse;
- prevention of heart disease;
- diabetes awareness;
- obesity and weight reduction;
- accident prevention;
- travel health;
- winter pressures, e.g. immunisation awareness;
- miscellaneous, e.g. campaigns specifically targeted at ethnic minority group, mental health promotion.

Further evaluation of these services (including means of remuneration and time spent in these activities) is necessary to accurately determine the extent to which these reported barriers exist today.

⁸ Local Pharmacy Health Development Projects – Testing Models of Implementation in Community. Pharmacy (2002). Unpublished work available on request from phs@rpsgb.org.uk; 020 7572 2265.

(response rate 66%) found that just over half (53%) had undertaken training in health promotion and overall 86% said they would be willing to undertake further training (B3: Dewsbury-Mason 1998, p84).

Pharmacists who received training as part of their participation in a health promotion programme (High Street Health, HSH) expressed a desire to spend less time dispensing prescriptions and more time advising customers. Training appeared to have resulted in pharmacists taking a more holistic view of health (B3: Anderson 1997, p82) an approach that is not generally predominant among community pharmacists without training (B3: Dewsbury-Mason 1998, p84). In addition, covert research on the HSH scheme showed that participating pharmacists spent significantly longer with clients consulting on smoking cessation and that they used leaflets more proactively (B3: Anderson 1997, p82).

Pharmacists in a focus group study were reported to be 'poor' at identifying their own training needs in relation to the supply of EHC (B3: Seston *et al* 2000, p72), for example, participants expressed concerns about 'clinical' issues but these were generally ill-defined. There was an identified need for training in how to conduct consultations for emergency contraception in a non-judgemental way. The need for training on EHC supply to focus on consultation skills rather than technical information was also found in a large qualitative study of community pharmacists (B3: Hughes 2000, p68).

In a study of the effect of training on smoking cessation advice, most pharmacy staff reported that the training had led to a change in their consultations with customers (B1: Sinclair 1997, p65). Pharmacy teams that had received training were not only significantly more knowledgeable about smoking cessation but also significantly more confident and positive about outcomes than were controls (B1: Sinclair 1997, p65). In addition, customers rated their discussions more highly with pharmacy staff from the intervention group.

Education and training of pharmacists in preparation for a health improvement role

Although pharmacists have reported their undergraduate and pre-registration training carried out in the late 1980s as being 'non-existent' or 'poor' in preparing them for an advice-giving role, no recent data to allow comparisons with the current situation was identified during the investigation for this report.

In contrast, however, pharmacists who have received post-graduate training in health improvement are significantly more positive in relation to their advice-giving role and expected health outcomes but these findings should be interpreted cautiously as it is likely there is a 'self-selection' effect. There are, however, significant benefits to be obtained for both pharmacist providers and pharmacy users when pharmacists undertake specific training in

External stakeholders

Relevant findings from peer-reviewed literature:

none relevant.

Key findings from non peer-reviewed literature:

- The extent of sustained joint working between community pharmacists and other members of the primary health care team is generally low but may be improved by joint training (B3).
- Primary health care team members expressed some general anxieties about the wider role of community pharmacy in promoting health but reported having confidence in individual pharmacists known to them (B3).
- New community pharmacy service developments such as EHC and head lice management were well-received by primary care health professionals (B3).

Extent of pharmacist involvement with primary health care teams

The extent of joint working between community pharmacists and other primary health care team (PHCT) members was explored using a mix of quantitative and qualitative methods in three studies. In a postal survey of 373 community pharmacists (response rate 78%) 14% of respondents reported regular meetings with PHCT members, and participation in collaborative projects or initiatives was reported by 13% (B3: Elliott 1996, p84). Some respondents commented that they had wished to take part but had not been invited to collaborate, indicating a reactive stance. Isolation from other health professionals was widely reported in a study of barriers and opportunities to community pharmacists' wider involvement in contraceptive and sexual health advice (B3: Hughes 2000, p68). In a study of advice on women's health issues, referrals from community pharmacists to other health professionals were found to be significantly related to a knowledge of local referral procedures and opening hours (B3: McAree 2001, p69).

Data from interviews with pharmacists reporting joint working in Elliott's (1996) study suggested that the survey results overestimated the amount of collaboration and teamworking. Of 15 pharmacists who reported such collaboration, 10 had established continuous joint working, while in the other five cases it was minimal or intermittent. It was noteworthy that pharmacists dispensing higher numbers of prescriptions were more likely to report collaboration. Close proximity to a GP surgery with no other pharmacies close by was also associated with collaborative work. Interviews with Health Authority Pharmaceutical Advisers showed them to have a key role in organising local initiatives but that such projects were for 'limited time periods, with limited funding and inadequate evaluation and generally involving an enthusiastic minority of pharmacists' (B3: Elliott 1996, p84).

Effect of joint learning events with PHCTs

Local multidisciplinary health improvement workshops for PHCT members that community pharmacists were invited to attend were evaluated prior to and following their delivery in a commissioned report (B3: Scott 1994, p85). Nine teams, each centred around one general medical practice, took part in the workshop. Interviews with over 40 participants were conducted pre-workshop, then at one week and three months post-workshop. Although PHCT members expressed confidence in individual pharmacists they often stated general concerns about community pharmacy in relation to possible wider roles. The key concerns were around community pharmacists' lack of access to patients' full medical history and about potential conflicts of interest arising from commercial activities. Nevertheless PHCT members were predominantly positive towards pharmacists' involvement. The community pharmacists themselves were pleased to have been invited to participate in the workshop but expressed anxieties about what they would be able to contribute and about how their presence would be received by PHCT members. This professional reticence contrasted with the attitude of

Analysis / discussion point:

- Pharmacists report isolation from other health professionals as one of the barriers to developing sexual health services.
- Referrals from pharmacists to other health professionals are higher where pharmacy staff have knowledge of relevant local services.
- Collaborative working is reported to be higher where the pharmacy dispenses high numbers of prescriptions or is the only pharmacy near a GP surgery. This suggests that collaborative working is currently associated with the existing mode of remuneration for pharmacy services.
- PHCT members are generally positive about pharmacists' involvement in service development, however, reservations exist around community pharmacists' lack of access to patients' full medical history and about potential conflicts of interest arising from commercial activities.
- Joint training events between pharmacists and PHCT members appear to be useful in promoting collaborative working but pharmacists report finding it difficult to find time to leave the pharmacy and attend 'team meetings'.

PHCT members, most of whom welcomed the idea of pharmacist participation. Three months after the workshop there was evidence of greater contact between pharmacists and the PHCT through specific joint events and the issuing of invitations by almost all the practices to the community pharmacists to attend practice meetings. However, attendance by pharmacists was reported to be low due to difficulties in making arrangements to leave the pharmacy premises.

4 DISCUSSION

Scope and quality of the material

A substantial number of studies (37) met the criteria for the review, representing considerable investment of resources by those conducting and commissioning the research. The scale of the research ranged from small local studies to national surveys and the quality of most studies was reasonable to good. A range of methodologies was used and the non peer-reviewed literature was particularly rich in qualitative studies with pharmacists and users. Low response rates to surveys or requests to participate in interviews was the most common reason for a study to be excluded from the review. It is noteworthy that most of the research with pharmacy users was based on convenience samples, hence these studies were graded as C1, although the quality of other aspects of the research was high and the studies would otherwise have merited a higher grading. Given the methodological challenges of seeking to construct a systematic sample of a population of service users it seems reasonable to accept that convenience samples might be considered adequate.

Some of the studies identified may have undergone a form of peer review process, especially commissioned research (although none of the reports considered made reference to such review). The research undertaken and submitted for higher degrees will have been subject to a form of peer review through the internal academic supervision process and assessment by internal and external examiners. Nevertheless little of this work found its way into the peer-reviewed literature. This body of work can help to inform the pharmacy profession and healthcare commissioners about the future development of community pharmacy-based services.

Where does the non peer-reviewed literature support the findings of the peer-reviewed literature?

The non peer-reviewed literature supports the findings from the peer-reviewed literature in several main areas.

Firstly, that community pharmacists are viewed by the public as experts who advise on medicines rather than health and illness. Secondly, that training has the potential to change community pharmacists' behaviour and orientate their practice towards effective health improvement activities. Thirdly, that the use of patient medication records to identify pharmacy users 'at risk' of certain illnesses can be a very effective way to identify and persuade this group to attend for consultation or treatment. Fourthly, that the community pharmacy environment seems to be an appropriate setting to deliver certain health interventions including smoking cessation, the prevention of coronary heart disease (CHD), immunisations and the supply of emergency hormonal contraception (EHC). Finally, that pharmacists report being reluctant to proactively offer health advice lest it be unwelcome to the client but are more likely to advise on general health issues if medicines are involved.

What new evidence does the non peer-reviewed literature contribute?

The non peer-reviewed literature provides new evidence on community pharmacists' public health role in relation to the primary health care team and on user and pharmacist perspectives of sensitive health topics such as EHC supply, head lice management and drug misuse services. These findings are important because they demonstrate the acceptability to pharmacy users of seeking and receiving advice on sensitive health topics within the community pharmacy setting. Evaluations of the head lice programmes sought feedback from other health professionals and demonstrated that GPs and school nurses rated these services highly and wanted them to continue.

The non peer-reviewed literature also provided further evidence of both pharmacy users' perceptions of, and their feedback on, actual pharmacy services. The data demonstrated the difference in reported perceptions of those who have not consulted a pharmacist about a sensitive topic and the experience of those who have. People who have used pharmacy services for health development consultations (including sensitive health

issues) have a higher level of comfort about privacy and confidentiality than those who have not.

In addition, the non peer-reviewed literature highlights that pharmacies are frequently used by people living in deprived areas and who are less affluent. Community pharmacies have the potential to contribute to reduction in health inequalities because they are regularly accessed by those who are most likely to have poor health chances.

Health topics

The search of the non peer-reviewed literature revealed additional health topics that had been provided in a community pharmacy-based setting and had been sufficiently evaluated for inclusion in this review. Topics included: sexual health; head lice management; mental health; the prevention of transmission of infection; and injury prevention. More details on each health topic is provided in the Results section.

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

Several studies showed that some pharmacy users expressed concerns about the level of privacy in community pharmacies and that a pharmacy might be selected, or deselected, depending on the facilities for private discussion. This was found to be particularly important in research on consumer attitudes to pharmacy advice on contraception and sexual health. The results of surveys of women who obtained EHC from community pharmacies were positive overall but indicate that for some pharmacies there is a need to review facilities, with approximately one in five women perceiving insufficient privacy. Similarly, studies of head lice management services showed that some users expressed concerns about the level of privacy during their consultation. Pharmacists can use this feedback to review how and where discussions are held in the pharmacy.

User perceptions of confidentiality were explored in studies on EHC and osteoporosis screening. The findings

suggest that publicity about the requirements for pharmacists and their staff to maintain confidentiality may also be needed so that pharmacy users are more aware of the pharmacist's obligations to ensure both privacy and confidentiality where appropriate. It is also possible that user perceptions will change over time as more pharmacies are refitted with provision for a consulting room or an obvious 'quiet area', or because pharmacies providing these facilities are preferably selected by users.

Interestingly, there is some evidence of a gap between pharmacists' and users' perceptions of what might constitute 'privacy' in the pharmacy. While some health topics are perhaps more obviously sensitive (e.g. EHC) and may require a lot of privacy, pharmacists may see some other topics as 'routine' and not necessarily needing such sensitive management (e.g. head lice treatment). Further research is needed to address this issue and also track any changes in premises development and the resulting use of pharmacies. It is possible that user surveys recommended in the implementation of clinical governance could also provide direct feedback to pharmacists and their staff.

Stakeholder views

User perceptions of community pharmacists

A common theme reported by users was that although they had often identified specific information needs they did not generally perceive the pharmacist as a source of health advice. Instead users tended to cite the GP as the key source of health information and advice but, nevertheless, they perceived the pharmacist as a highly appropriate source of advice about the use of aspirin in CHD prevention and welcomed the increased convenience and access resulting from deregulation of the supply of EHC. These findings suggest that users are more likely to accept the community pharmacist's role as health adviser, at least initially, when related to medicines supply.

Community pharmacists' perceptions of their advice-giving role

Pharmacists also have concerns about doctors' views of their involvement in health improvement. These are important barriers to opportunistic health improvement activities and involvement in wider service provision. Given the sensitivity of certain health topics, such as sexual health and obesity management, it is understandable that pharmacists might prefer to take a reactive rather than proactive role on these issues, however in other areas, such as heart disease prevention, the non peer-reviewed research suggests that users would already welcome information and advice from the pharmacist. Promotion of the pharmacist's role in information giving to the public was suggested by pharmacists, in some studies, as a strategy to increase utilisation of the pharmacist's advice.

Community pharmacists and external stakeholders

The non peer-reviewed literature provides new evidence on pharmacists' health improvement role in relation to the primary health care team. Research conducted in the mid-1990s suggested low levels of collaborative working between community pharmacists and other members of the primary health care team. The findings suggested that only 10% of community pharmacists had sustainable joint working underway with local GPs. Multidisciplinary workshops were shown to increase shared understanding of the contribution that community pharmacists might make to health improvement as part of the primary health care team and to lead to an increase in joint working three months later. Pharmacists themselves were reticent about what contribution they might make to improving health within this framework. Research showed that low awareness among community pharmacists of local support groups and other agencies is likely to be a barrier to increasing referrals from the pharmacy to non-primary care services.

5 CONCLUSIONS

The non peer-reviewed literature strengthens the review of evidence by confirming the key findings of Report 1 (the peer-reviewed literature), by adding new material on health topics and on the relationships between community pharmacists and the primary health care team, and by providing further insights into pharmacist and user attitudes and behaviours.

There is a high degree of expressed interest among users in the availability of further information and advice from pharmacists, although the pharmacist is not seen as a primary source. The research findings suggest considerable scope for joint working of pharmacists, users and healthcare commissioners to develop pharmacies as a local and accessible advice point complementary to existing services.

Since the review was conducted the modernisation of the NHS has continued at pace. Following announcements for structural reform and the devolution of decision-making to a more local level, there is a willingness to pilot new ways of working to improve access and quality of services and release a plethora of opportunities to develop community pharmacy services in order to suit the needs of the local population and to integrate more closely with existing NHS services. It is possible that the level of joint working between community pharmacists and the primary health care team will already have increased as a result of recent initiatives, such as the implementation of Patient Group Directions for emergency contraception and the development of smoking cessation services. In addition, increasing numbers of community pharmacists are undertaking session work with local GP practices for prescribing and medication review purposes. It will be important to continue to track progress in this area and to ensure the integration of the community pharmacist into the primary health care team and local community from the perspective of health improvement.

Further research is also needed to measure any change in the public's perception of the pharmacists' role in health improvement. Evaluation of innovative approaches to services and premises development will also be crucial to informing service design to meet the needs of users, and particularly in relation to queries about approaching the pharmacist for general health advice and addressing perceptions about privacy and confidentiality.

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Appendix 1. 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 2 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 1 for an explanation of the categorisation of grade used).

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SMOKING CESSATION

Title, authors, source type, year and evidence grading Sinclair HK.

Community pharmacy and smoking cessation: training in behavioural change. PhD thesis, Department of General Practice and Primary Care, University of Aberdeen (1997). **B1**

Objectives To develop and evaluate a training package for community pharmacists and their assistants to improve the counselling in smoking cessation provided in community pharmacies.

Study design Randomised controlled trial (randomised by pharmacy to intervention and control). Interviews to gain insight into the pharmacy support process. Intervention pharmacists and pharmacy assistants were invited to attend a two-hour training session. Outcome measure was self-reported smoking cessation rates of the two groups at one, four and nine months. A sub-sample of pharmacy customers (25 intervention; 25 controls) were interviewed by telephone six months after registration. Pharmacists completed a questionnaire immediately after training and 2 and 12 months later. Telephone interviews were conducted with 20 pharmacy personnel.

Sampling and response rate All 76 non-city Grampian community pharmacies were invited to

participate and 62 (82%) agreed. All intervention pharmacies were represented at the training (40 pharmacists and 54 assistants).

Key findings Pharmacy personnel thought the stage of change model was a good way of understanding stopping smoking. Most reported that the training had made a difference to the way they counselled customers. At 2 and 12 months the intervention pharmacy teams were significantly more knowledgeable, self-confident and positive about the outcome of pharmacy counselling than controls.

Customers (224 intervention; 268 controls) were recruited to the study. Significantly more intervention subjects were not smoking at each follow-up: one month 37% cf. 29%; four-months 20% cf. 13%; nine-months 12% cf. 7%. Statistical analysis showed these findings to be robust to confounders (sex, age, deprivation, nicotine dependency). Cluster randomization was found to have a negligible effect. Intervention respondents were significantly more likely to have discussed stopping smoking with pharmacy personnel (85% cf 62%). Intervention subjects rated their discussion more highly, 34% cf 16% of controls rated it as 'very useful'.

CORONARY HEART DISEASE – THE USE OF ASPIRIN IN PREVENTION

Title, authors, source type, year and evidence grading Kinghorn IA.

The health education needs of patients buying or receiving aspirin on prescription for thromboprophylaxis. MSc thesis, Department of Medicines Management, Keele University (1998). **C1**

Objectives To establish the reason for purchase/prescription of aspirin; assess the patient's knowledge of aspirin's use and mode of action in coronary heart disease (CHD) prevention; assess patients' knowledge of CHD risk factors;

identify key information needs of patients in relation to aspirin; establish the acceptability of advice about aspirin in the pharmacy and patients' preferred content and format of advice.

Study design Telephone survey using a pre-piloted structured interview schedule (mean 23.2 minutes). Patients buying or receiving aspirin on prescription were recruited from six community pharmacies from a range of socio-economic locations in Glasgow.

Sampling and response rate Of 148 individuals who were approached to take part, 128 (91.4%)

agreed. Of these the researcher was able to contact 108 during the study period.

Key findings 70 (64.8%) respondents received their aspirin on prescription and 38 had purchased it. Most respondents were taking aspirin for secondary prevention. Information needs were identified in relation to both aspirin and CHD

prevention. The pharmacist was considered highly appropriate as a source of advice on both aspirin and CHD but pharmacists were not considered to be providing this service currently. Pharmacy premises were considered by some to lack privacy. Personal input from the pharmacist was considered important in information provision.

DRUG MISUSE

Title, authors, source type, year and evidence grading

Sheridan J.
HIV/AIDS and drug misuse: Perspectives of pharmacy undergraduates and pharmacists. PhD thesis, University of London (1995). **B3**

Objectives To investigate attitudes and knowledge of pharmacy undergraduates and community pharmacists of HIV/AIDS and drug misuse; to investigate community pharmacists' practice in relation to drug misuse and harm reduction services; to investigate clients' views on community pharmacy services for drug misusers.

Key findings Pharmacy undergraduates were found to have positive professional opinions, but also to hold some negative personal opinions about HIV and drug misuse. An educational

intervention was shown to have a significant positive effect on knowledge but a less noticeable effect on attitude.

Over half of the community pharmacists were dispensing controlled drugs to drug misusers and 13% were providing needle exchange. Community pharmacists, like undergraduates, had positive professional attitudes and some negative personal attitudes towards drug misuse. The latter tended to be more negative, indicating that practice experience may have an effect.

Drug misusers considered themselves to be stigmatised by community pharmacists, although some reported positive experiences. Clients perceived community pharmacists to be service providers but not a source of advice.

Title, authors, source type, year and evidence grading

Matheson C.
Community pharmacy services for drug misusers: a study of the perspectives of service users and providers. PhD thesis, University of Aberdeen (1999). **B3**

Objectives To investigate the effect of pharmacists' attitudes to drug misusers on the services provided and how services are delivered as perceived by the pharmacist and the drug misuser.

Study design Four methods were used. A structured postal questionnaire collected quantitative data from all community pharmacy managers in Scotland on their attitudes towards and level of involvement in service provision for drug misusers ($n = 1041$). Telephone interviews were conducted with a sub-sample of 45 pharmacists to obtain in depth information. Face-to-face interviews with 124 drug misusers were

conducted in four cities and adjacent rural areas. Observation of interactions between drug users and community pharmacists was conducted and field notes taken.

Sampling and response rate Questionnaire response rate: 79%.

Key findings Controlled drugs were dispensed to drug misusers by 61% of respondents. Methadone was dispensed by 55% and methadone administration was supervised by 19%. Positive attitudes were associated with higher levels of service provision. Pharmacists were motivated to provide services by a desire to reduce the spread of blood-borne diseases and to expand their professional services. Barriers were concerns for the effect on other customers, safety, workload and inadequate remuneration. Drug misusers perceived providing clean injecting equipment and methadone dispensing as

important services. Drug misusers asked pharmacists for advice on general health and few asked for advice related to drug misuse. Being treated discreetly and having a good relationship with the pharmacist/staff encouraged service uptake. Negative treatment promoted stigmatisation and precipitated negative behaviour.

The author concluded that remuneration, professional endorsement and better communication with other services would encourage pharmacists to provide services identified by drug misusers, such as greater availability of injecting equipment.

Title, authors, source type, year and evidence grading Scott J.

Development, implementation and evaluation of harm reduction techniques for drug misusers. PhD thesis, Robert Gordon University (2000). **C1**

Objectives To explore the provision of a pharmacist-led information and advice service at a voluntary sector drugs agency.

Study design Field study monitoring the role of a pharmacist within a voluntary sector drugs service. Members of the public and other external contacts could access the service one 3-hour afternoon session each week when the pharmacist was present in the agency. Drug agency workers had telephone access to the pharmacist throughout working hours.

Key findings A total of 77 contacts were made with the pharmacist during the 26 weeks that the service was in operation. Of the 77 contacts, 45 were with Drugs Action workers, 25 with members of the public and seven with workers from outside organisations.

Members of the public were asked if they might consider asking the community pharmacist about their query and most said not. The non-judgemental attitude associated with the drugs agency and its staff was cited as the main reason why the query had been made there. Drug information was the commonest type of query (37% overall, numbers slightly higher about prescribed than non-prescribed drugs). Drug testing was the next commonest (15%). About half the queries were answered using pharmacy 'core' knowledge, a quarter with 'specialist' knowledge and a quarter with both. The key specialist skill required was translating technical information into terms used in the 'drug culture'.

Other comments The findings indicate that there is a role for pharmacist query answering within drugs agencies. Some specialist knowledge was required. Client attitudes appear to be an important barrier to information and advice-seeking in community pharmacies.

SEXUAL HEALTH

Title, authors, source type, year and evidence grading Campbell Keegan.

Ask the pharmacist: advice on safer sex and contraception. Report commissioned by Pharmacy Health Care Steering Group (1992). **B3**

Objectives Examine pharmacists' views on their role on advising on safer sex and contraception; explore views on development and support needs for this role; investigate consumer views on pharmacists as an information source on safer sex / contraception.

Study design Structured interviews with pharmacists (telephone) and consumers (face-to-

face). Qualitative telephone and face-to-face interviews with sub-sample of respondents.

Sampling and response rate 'Clustered random sample of pharmacies across the UK'. Four regions: north; south; Wales; Northern Ireland. Of 168 pharmacists who were approached, 104 (62%) participated in the telephone interview; 63% worked for independents and 36% for chains. Qualitative interviews were conducted with 13 pharmacists. 224 consumers took part in the quantitative interviews (49% male, 51% female). Qualitative interviews were conducted with 17 consumers.

Key findings Of the pharmacists interviewed, 86% thought that pharmacists have an important role in promoting safer sex / contraception and 53% thought pharmacists should do more in this area. However, most (73%) pharmacists reported being asked for advice on contraception less than once a week. The researchers state that pharmacists generally took a reactive role, providing advice when asked. 64% of consumers said they would like more

advice on contraceptives / safer sex from the pharmacist. The most important factor in considering a pharmacist for advice was a quiet area (41%). No one spontaneously suggested they would go to the pharmacist for advice on safer sex or contraception, 38% saying they would go to their GP. However, on probing 30% reported having gone to the pharmacist for advice on contraception at some time in the past.

Title, authors, source type, year and evidence grading Hughes K.

Pharmacists and contraceptive and sexual health issues: qualitative research to inform of barriers and opportunities. Report for Health Education Authority (2000). **B3**

Objectives Explore barriers and opportunities around pharmacists working with contraceptive and sexual health issues. To explore pharmacists' current knowledge and experience in sexual health; to investigate attitudes towards giving advice and information on general health and sexual health; to consider support needs; to explore issues around pharmacy involvement in the provision of emergency hormonal contraception.

Study design Group discussions with five to six pharmacists plus individual interviews.

Sampling and response rate Eight discussion groups and 18 interviews. Pharmacists were excluded if they disagreed with the statement 'I feel that pharmacists have an important role to play in improving the health of the general public and promoting healthy lifestyles'. There were two groups for each of: independents; independent chains; large chains; supermarkets. Four groups were of pharmacists qualified for up to five years; the remainder for five or more years.

Key findings Most participants saw their role as 'revolving around the provision and sale of medicines', advising people on how to take medicines, and responding to queries about symptoms and how best to treat them. Ways in which pharmacy might evolve in the future that were mentioned most often were running clinics for diabetes and asthma, managing long-term medication, pharmacist prescribing and health promotion. Promoting the clinical and wider skills

of pharmacists to the public was seen as desirable. Participants thought that pharmacy had been left behind in relation to nurse prescribing, smoking cessation services and other health promotion areas. Pharmacists were isolated from other health professionals and each other. People did not typically ask pharmacists about general health issues. Pharmacists were generally not proactive in health promotion. They felt they could only respond to customer queries and 'raising health promotion issues with most clients was regarded as highly problematic'. There was no way of knowing who might appreciate the advice and who might be offended.

Health promotion activity was more likely to be formalised in larger chains.

The potential conflict of interest was raised where health promotion advice might not require the purchase of a product. While most pharmacists thought that providing the right advice led to benefits in the long term, there was discussion about the losses and gains in becoming more involved in health promotion.

Across the sample, involvement in sexual health promotion was limited and entirely as a result of customer queries. There was general agreement that expanding the role of pharmacists in this area was likely to be problematic. Many participants felt uncomfortable about this area of advice. A private area was seen by most as essential. When discussing EHC however participants generally saw more scope for involvement. There was support for deregulation of EHC, which was seen to offer more involvement in 'prescribing', increase pharmacists' status and provide a business opportunity. Concerns were expressed about liability, ethical issues and potential abuse. Training needs were felt to be around consultation skills rather than clinical information.

Title, authors, source type, year and evidence grading McAree DP.

Women's health: community pharmacy care. PhD thesis abstract, School of Pharmacy, Queens University of Belfast (2001). **B3**

Objectives To evaluate community pharmacists' knowledge, attitudes and competency in relation to women's health; to introduce and evaluate a pharmacy-based advice service for women.

Study design Pharmacists' knowledge was measured at baseline and following a distance learning course using a postal questionnaire. A postal questionnaire measured pharmacists' attitudes towards providing advice on women's health. 521 female Boots pharmacy customers were interviewed face-to-face by a pre-registration graduate to identify health issues of importance to women and to ascertain their opinions and reservations on aspects of a dedicated pharmacy-based service. Pilot study in four community pharmacies.

Sampling and response rate Of 350 pharmacists, 216 responded to the pre-course and 133 to the post-course test. Response rate was 273 (47.5%) completed

questionnaires from a valid random sample of 575. 602 questionnaires were distributed, 521 completed and 81 refusals (response rate: 86.5%). Pharmacist feedback from feasibility study was obtained through a seminar.

Key findings Of 350 pharmacists, 38 had completed the distance learning course and showed significant improvement in test scores. The attitudinal survey showed that pharmacists reported they were not embarrassed to discuss many women's health issues. Some concerns were expressed about confidence and knowledge deficits. Male pharmacists perceived themselves as significantly less knowledgeable or more embarrassed on a number of issues. Pharmacists' referral to other professionals was significantly related to their knowledge of opening hours and referral procedures.

The customer survey identified a number of factors that might influence use of a pharmacy advice service including quality and confidentiality. Pharmacists in the pilot study documented improvement in competency and knowledge. Clients were reported to respond positively to the service.

EMERGENCY HORMONAL CONTRACEPTION

Title, authors, source type, year and evidence grading Lambeth, Southwark and Lewisham Health Action Zone.

A timely service: Lambeth, Southwark & Lewisham Health Action Zone project on access to emergency hormonal contraception through accredited community pharmacies. Lambeth, Southwark & Lewisham Health Action Zone (2002). Report. **B3**

Objectives To assess the knowledge and experience of users of the emergency hormonal contraception (EHC) Patient Group Direction (PGD) scheme.

Study design Questionnaire distributed to 1558 service users at the community pharmacies. The questionnaire covered user satisfaction and included opportunities for qualitative comments. Four qualitative interviews with service users to validate context. Individual and group interviews with participating pharmacists.

Sampling and response rate Response rate: 20% (315).

Key findings Of the service user respondents 98% reported being 'satisfied' or 'very satisfied' with the service and 90% said they felt 'comfortable' or 'very comfortable' discussing their request with the pharmacist. 78% felt there was sufficient privacy for their discussion and 76% reported no concerns about confidentiality. Concerns about confidentiality were higher in those under 20 years of age. Roughly 20% of respondents had concerns about privacy and/or confidentiality.

Provider pharmacist interviews highlighted the importance of good counter staff who could manage waiting customers. No pharmacist mentioned difficulty with the record-keeping required for the project. Pharmacists reported an increase in their professional self-esteem.

Title, authors, source type, year and evidence grading Anderson C, Bissell P, Sharma S & Sharma. R. Manchester, Salford and Trafford Health Action Zone.

Report into the provision of Emergency Contraception in Community Pharmacy Via Patient Group Directions. University of Nottingham (2001).

C1

Objectives Aims were to assess the knowledge, experiences and attitudes of service users (SUs); to explore the perspectives of pharmacist providers; to assess how pharmacists were operating the service.

Study design Questionnaire distributed to service users by pharmacists. The 28-item questionnaire was structured with space for additional comments. A sample of SUs were asked to participate in focus groups.

Interviews with 24 pharmacists.

'Mystery shopper' evaluation with researchers posing as SUs.

International literature review on emergency hormonal contraception provision.

Sampling and response rate Of 5020 questionnaires distributed to 53 pharmacies, 490 were returned (9.8%).

Key findings The age range of the 490 respondents was 15–52 years; a mean of 25. 37% were in college or higher education, a quarter were graduates and 14% were postgraduates. 17% were aged 19 years or under. Almost all the

SUs (99%) said they were 'very satisfied' or 'satisfied' with the way their emergency hormonal contraception (EHC) request had been handled. 99% indicated that they had received enough information from the pharmacist. 85% felt there was sufficient privacy; 80% were either 'unconcerned' or 'very unconcerned' about the confidentiality of their enquiry for EHC; 19% were 'concerned' or 'very concerned' about confidentiality and this was higher among under-19 years (28%). 70% of those who had used EHC before indicated that the pharmacy service was 'much better' than their previous service provider. Awareness of the pharmacy service came from friends and family (30%), TV or radio (26%), GP (15%), pharmacy poster (14%) and NHS Direct (9%). Respondents indicated that weekday evenings, Saturday mornings, afternoons and Sunday mornings were the most convenient time to access EHC. Focus group data showed that some participants had found it difficult to find out which pharmacies were providing the service and when they were open. A need was identified for information and advertising about the service. Most participating pharmacists expressed positive views about the service for both SUs and pharmacists. Some concerns were expressed about the additional workload that providing the service imposed, variability in remuneration practices between different pharmacy chain employers and lack of private space for conducting consultations. Few pharmacists reported that repeated use of EHC was a problem in practice.

Title, authors, source type, year and evidence grading Pharmacy Alliance.

Emergency hormonal contraception: Customer survey. Report for Schering Healthcare (May 2002a). **C1**

Objectives To assess customers' attitudes towards availability, sale and supply of emergency hormonal contraception (EHC) from the community pharmacy, and any information needs they may have; to establish women's views on the community pharmacy and the community pharmacist as sources of EHC supply and advice.

Study design Participating pharmacies (250) were selected as study sites from respondents to a pharmacist questionnaire. The questionnaire was sent to 2219, and 1426 (64%) pharmacists

responded, of whom 435 were willing to take part and 250 were selected to do so. Selection criteria were speed of return of questionnaire and numbers of packs of Levonelle sold (based on Unichem data). Each pharmacist was asked to recruit 10 EHC customers to complete the consumer survey. A 'customer refusal count sheet' was provided to document refusals.

Sampling and response rate The overall response rate was 30% (785). There were three groups of pharmacies: Pharmacy Alliance (PA), Moss Pharmacies and Unichem Community Pharmacy Initiative (CPI) scheme. Consumer questionnaires were returned for 59%, 40% and 24% of these pharmacies respectively. The percentages of possible forms returned were 36% PA, 24% Moss and 16% CPI.

Key findings The mean age of the 785 respondents was 26 years (range 14–53 years). 80.8% were white and 19.2% non-white. EHC was received on prescription by 42.4%, over the counter sale by 44% and Patient Group Direction (PGD) by 13.6%. The 16–20 age group recorded the highest level of access by PGD at 17.3%. Under 16-year olds received EHC on prescription in two-thirds of cases and PGD in 14.3%, with 21.4% not reporting a source. Women over 20 years were the largest group and more likely to buy EHC over the counter. Monday was the commonest day for obtaining EHC (200, 27.7%), with Saturday 14.9%, and no major differences between Saturday and other days of the week. 71% of women accessed

EHC within 24 hours of unprotected intercourse. Speed of access and convenience were the most common reasons reported for purchasing EHC over the counter. Prior to the current supply of EHC, 66.4% of women were aware that EHC was available without a prescription. Respondents rated a series of statements from 1 (strongly disagree) to 5 (strongly agree). There was a high level of satisfaction with the amount of advice and information received, the median response being 4 for both. Pharmacies were highly rated as a suitable place to obtain and discuss EHC, median response 4 for both. Anonymity was cited by 9.7% of respondents as a key reason for pharmacy purchase of EHC.

Title, authors, source type, year and evidence grading

Pharmacy Alliance.
Emergency hormonal contraception: Pharmacy survey. Report for Schering Healthcare by Pharmacy Alliance/Unichem (May 2002b). **B3**

Objectives To assess the attitudes of community pharmacists in the UK towards the sale and supply of emergency hormonal contraception (EHC) one year after its deregulation to a P medicine; to determine the training undertaken by pharmacists and assistants on EHC; to determine the reasons why some pharmacists do not supply EHC.

Study design A structured postal questionnaire was sent to all 2219 members of Pharmacy Alliance (802), Moss Pharmacies (773) and UniChem's Community Pharmacy Initiative (CPI) scheme (644) in England, Scotland and Wales.

Sampling and response rate Response rate was 56% after the initial mailing and 64% after one reminder. Response rates were 76% (613) Pharmacy Alliance; 72% Moss (554) and 40% (259) CPI. The age and gender profiles of respondents were compared with Royal Pharmaceutical Society of Great Britain data and found to be similar. There were no publicly available data with which to compare the white/non-white respondent profile.

Key findings 55% of respondents were male and 69% were white. The mean age of respondents was 41 years. Overall 94% reported that they worked regularly in the pharmacy from which the survey was completed. Breakdown of respondents

by professional status was 58% managers, 31% owners, 7% locums (10% missing or other). Almost all (98.9%) respondents said they would supply EHC on prescription and 89.4% said they would sell EHC over the counter (OTC). EHC was being supplied under Patient Group Direction (PGD) by 20% of respondents and a further 51% who were not participating in a PGD scheme said they would like to do so. Of the 284 pharmacists involved in PGD schemes 66% (136) reported that under 16-year olds were excluded. Respondents were asked to rate a series of statements from 1 (strongly agree) to 5 (strongly disagree) Pharmacists disagreed that OTC availability had resulted in increased promiscuity/sexual activity (median response 4). They supported the supply of EHC on PGD to under 16-year olds (median response 2) and, while they were not in favour of OTC availability for this group (median response 4), they did not agree that all under 16-year olds requesting EHC from a pharmacy should be referred elsewhere. This suggests that pharmacists wish to use their professional judgement about supply. Pharmacists did not agree that they had found it difficult to deal with teenagers' requests for EHC (median response 4). Pharmacists felt that EHC availability OTC had provided an opportunity to develop new counselling skills (median response 2). They agreed that the price of the OTC product was a deterrent to patients buying it (median response 2). Most (91%, 1302) pharmacists reported that they had undertaken training on EHC. Centre for

Pharmacy Postgraduate Education (CPPE) workshops had been attended by 30% and CPPE distance learning used by 56%. Manufacturers' support information was used by 52%. Three-quarters of respondents reported having a 'set protocol' for sales of EHC. Women for whom

OTC EHC was identified as inappropriate were referred to GPs by over 90% of respondents and to Family Planning Clinics by around 60%. Pharmacists reported little feedback from their customers about positive or negative outcomes after use of EHC.

Title, authors, source type, year and evidence

grading Seston E, Holden K & Cantrill J. Deregulation of hormonal emergency contraception: Pharmacists' concerns and support needs. Report for Royal Pharmaceutical Society of Great Britain (2000). **B3**

Objectives To explore community pharmacists' views on the deregulation of emergency hormonal contraception (EHC) from POM to P (prescription only medicine to pharmacy medicine) and to examine training and support needs related to the switch.

Study design Focus groups with 14 community pharmacists.

Sampling and response rate Two groups were held; one with community pharmacists already providing EHC under a Patient Group Direction (8), the other with no experience of providing EHC (6). Pharmacists worked for a variety of employers including multiples, small chains and independents.

Key findings Pharmacists were 'poor' at identifying their own individual training needs. Most participants supported mandatory training before 'prescribing' deregulated EHC. Pharmacists expressed concerns about 'clinical' issues and these were generally ill-defined. Some participants were concerned about how they would deal with under-age clients. There was an identified need for training for pharmacists in how to conduct consultations for EHC in a non-judgemental manner. Pharmacists in both focus groups expressed concerns about possible 'abuse' of EHC although the authors comment that many of these concerns were based either on inaccurate information or subjective assumptions. The pharmacists who were already supplying EHC said that their prior concerns had rarely materialised in practice. The authors reported a sense that EHC was accorded a special status by participants when compared with other POM to P switches.

Title, authors, source type, year and evidence

grading Edwards L. Levonelle – P status and women's needs: qualitative research. Report for Schering Health Care (2000). **B3**

Objectives To explore women's information needs in relation to the POM to P (prescription only medicine to pharmacy medicine) switch of emergency hormonal contraception (EHC).

Study design Ten focus groups with women who had used / might use EHC.

Sampling and response rate Sampling stratified by social class and age/lifestage. Each group comprised half who were users of emergency contraception and half who were non-

users but not 'rejecters'. Those who said they would 'definitely' only obtain EHC from the doctor were excluded.

Key findings Participants were positive about convenience / accessibility of EHC following the switch. However, concerns were expressed about possible abuse of EHC. Key questions were: is it OK for me to do this?; what will my experience be if I do this?; what will happen to me afterwards?; Am I in time?; How effective is it? 'Myths' identified were worries about how often EHC could be taken and whether it might affect fertility in the longer term. The open pharmacy environment was a major concern, as was confidentiality / what records would be kept.

IMMUNISATION

Title, authors, source type, year and evidence grading Williams A, Bond CM, Winfield AJ, Calder G, Taylor R & Ritchie LD.

A public health role for the community pharmacist: a pilot study to identify patients who may be considered for influenza vaccination. Report to the Scottish Office (1993). **B3**

Objectives To assess the potential for a public health role for community pharmacists using influenza as a 'tracer' condition.

To assess the community pharmacist's facility to identify patients who may be candidates for influenza immunisation.

Study design A systematic method (using patient medication records: PMR) and an opportunistic method (with customers asking for advice about specific symptoms or for influenza or requesting certain over the counter medicines) were used. The systematic method was used in one health centre pharmacy with 30,000 patient records on the PMR system and the opportunistic method in 25 pharmacies. In the systematic method a list of 'at risk' factors was compiled based on age and prescribed medication. Patients were selected randomly from the computer-maintained list and their medication records checked for 'at risk' factors. Records were selected in this way until 250 eligible patients had been identified. The computer file for each of these patients was then flagged such that the patient would be identified the next time they presented with a prescription. 'At risk' patients were asked to complete a short questionnaire. Pharmacists in the 'opportunistic' study were each given 10 questionnaires to be given to customers.

Sampling and response rate In the opportunistic study 37% of questionnaires were returned.

Key findings The systematic method using PMR was effective in identifying patients who would be candidates for influenza immunisation. 186 patients completed a questionnaire, 99% of whom fell within an 'at risk' category. A significant proportion of patients (69%) had not previously been immunised against influenza, and this percentage was lower in patients with asthma (25%). The authors comment that the research demonstrated that PMRs have valuable applications other than those associated with the dispensing process.

The opportunistic method showed some potential but was hampered by a poor response from community pharmacists. However, for the 74 people presenting with influenza-like symptoms, 97% were identified as having one or more 'at risk' factors. Feedback from the pharmacists indicated that lack of remuneration was the main reason for the low participation rate. Further work would be needed to confirm its value.

Other comments The authors recommended that: a national study using the PMR method should be conducted with a concurrent advertising programme and leaflets; that community pharmacy data collection could be used to monitor infectious disease outbreaks such as diarrhoea and infestation; that remuneration should be given to the pharmacist to cover time and the cost of training staff.

HEAD LICE

Title, authors, source type, year and evidence grading Philips Z, Whynes D, Parnham S, Slack R & Earwicker S.

The role of community pharmacists in counselling patients and prescribing medication for the treatment of head lice. Report commissioned by the National Pharmaceutical Association Nottingham University (1999). **B3**

Objectives To assess the usage, acceptability,

effectiveness and effects on costs of community pharmacy, rather than general practice, being the first port of call for suspected head lice infestation

Study design Before (3 months) and after (3 months) design in one health authority area involving 32 community pharmacies in three Primary Care Groups and 120,000 registered patients. The scheme was continued beyond the initial three months for a further 15 months and

was monitored over this period. From January 1998 community pharmacy was promoted as the principal source of advice and treatment for head lice. After training, pharmacists provided education and counselling. Proof of infestation was required before treatment was recommended. Pharmacists supplied treatment from an agreed formulary where needed and were paid a fee regardless of whether treatment was supplied. Community pharmacists recorded prescriptions and over the counter consultations about head lice for three months prior to the study. During service provision pharmacists used a Pharmacy Prescription (PP1) form for both exempt and non-exempt patients. Prescribing Analysis and Costs (PACT) data were used to assess changes in prescribing of head lice treatments. Questionnaire surveys of patients (convenience sample of users) and health professionals were conducted.

Sampling and response rate Questionnaires completed by 336 patients and 201 health professionals (60 GPs, 42 pharmacists, 69 headteachers and 30 school nurses). No response rates stated.

Key findings Most of the 5710 scheme users in the three-month evaluation period were female (3846; 67.4%) and children (4383; 76.8%) and exempt from prescription charges (5394; 94%). A distinct trend away from consultations with the GP and towards community pharmacy consultations

was apparent within the first month of the scheme and continued throughout the evaluation period, with increasing self-referrals. Patients were typically registered with a GP in the surrounding area of the pharmacy used. No treatment was recommended in one-third of consultations. Prior to the scheme 30% of prescribed treatments were non-formulary compared with over 99% formulary during the scheme (malathion and 50ml or 55ml 'dose'). The ratio of prescribing of head lice treatments in the study area to the rest of the health authority area was 60% at baseline and fell to under 25% demonstrating decreased GP prescribing in the study area. Cost analysis showed that community pharmacy consultations cost less than GP consultations for head lice. The questionnaire results showed that patients and health professionals viewed the new arrangement as at least as acceptable as the old.

In total 336 questionnaires were completed by patients, most of whom were women. While the overall findings suggest that the scheme was well-received, 17.6% said they were embarrassed to speak to the pharmacist about head lice. Around half reported previous head lice infection. Health professionals were generally positive about the scheme, with GPs and school nurses finding it most beneficial. Head teachers had some concerns about the need for parental education and for parents to take responsibility for checking hair and ensuring treatment compliance.

Title, authors, source type, year and evidence grading National Pharmaceutical Association. Sunderland Integrated head lice infection management service – an interim report. Report for the National Pharmaceutical Association (2001).

B3

Objectives To enable easier access to appropriate treatment for head lice; to promote self-care.

Study design Two primary care groups provided a community pharmacy-based head lice management service. Participating pharmacists (initially from 32, later expanded to 47 pharmacies) were required to participate in training to facilitate consistency of advice. Head teachers were also invited to the training. From September 1999, GPs and community nurses were encouraged to refer clients to the pharmacy and not to prescribe head lice treatment. Pharmacists used a

prescription form HL1 to record consultations. The formulary was malathion only, with a 'dose' of 2 x 50ml. The nursing team carried out a telephone survey of a random sample of clients who had used the service.

Sampling and response rate Questionnaires were sent to GPs (38% response), surgery staff (54%), school nurses (68%), health visitors (28%), head teachers (57%) and pharmacists (87%).

Key findings Over a seven-month period 1847 clients accessed the service, with 1432 proving infection for 2897 household members. Most clients were female and children. The use of a chemical insecticide was avoided in 415 suspected infections. Pharmacists maintained 100% compliance with the local formulary, so all clients were treated in accordance with local guidelines.

Prior to the service commencing, concerns had been raised about a perceived lack of privacy in community pharmacies. The client survey showed that 42% said they were able to discuss their problem in private, 34% said they were not able to discuss their problem in private and 24% said they were 'not bothered'. The community pharmacy service was rated as: excellent (28%), very good (34%), good (20%), average (8%) and poor (4%). Just over half the clients recalled having head lice infection within the last two years. 98% reported they had understood what the pharmacist had said and 66% said their treatment was successful (10% said it was not). 74% said they intended to use the head lice detection comb (supplied by the pharmacist) on a regular basis. 71% of GPs said that the service had reduced the time they spent dealing with head lice infestation. Overall 34% said they rarely (31%) or never (3%) saw the client when prescribing head lice treatment. Over 90% of health professionals said they were happy for the service to continue and the majority (67-85%) agreed that the service had

'made my life easier'. When asked if the service should be extended to cover other conditions, 60% of pharmacists, 66% of GPs, 52% of surgery staff, 62% of school nurses and 36% of health visitors agreed.

Pharmacists were positive about the scheme and 93% said they would be happy to continue. Pharmacists reported that 67% of initial consultations took 5–10 minutes with 29% taking less than 5 minutes and 5% more than 10 minutes. Overall the cost of the new service was similar to the previous equivalent period, even though twice the quantity of treatment was supplied under the new service in line with treatment guidelines recommending two applications one week apart.

Other comments The authors comment that GP-time was previously used in dealing with head lice. They point out that the condition has no associated health risks, implying that GP-time freed by the scheme could be used to deal with more serious conditions.

Title, authors, source type, year and evidence grading Thomas G.

A study of the advice and treatment recommended for head lice infection in the Wrexham Local Health Group area. MSc Thesis, Department of Medicines Management, Keele University (2000).

B3

Objectives To establish the thoughts and beliefs of different professional groups on head lice infestations and treatment.

Study design Postal questionnaire to head teachers of junior and primary schools, school nurses, community pharmacists and GPs in one Local Health Group area in Wales.

Sampling and response rate Response rates: 65% (13 of 20) GPs; 90% (27 of 30) community

pharmacists; 84% (43 of 51) head teachers and 73% (11 of 15) school nurses.

Key findings Head teachers and health professionals were in agreement that head lice infection was an increasing problem. Schools did provide information to parents and that information was sometimes out of date or in conflict with that given by health professionals. Head teachers and GPs tended to have a preference for physical methods of head lice removal and the results suggest that this might be related to their thoughts on the safety and efficacy of insecticides. Variation in the recommendations made by different respondent groups had the potential to confuse parents. The author concluded that there was a need to develop a consistent approach to advice and information on detection and treatment of head lice.

Title, authors, source type, year and evidence grading McGovern EM, Bryson SM, Lennie M, Roddick E & Anderson C.

Use of head lice products in three Local Health Care Co-operatives. Royal Pharmaceutical Society of Great Britain Local Health Care Co-operative

Conference (2001). **C1**

Objectives To evaluate the use of head lice preparations.

Study design Thirty-four community pharmacies recorded requests for head lice treatments for one

month. Data collected included insecticide supplied, whether on prescription or over the counter and whether live lice had been found by the customer. The pharmacies also recorded when advice was given and if not, why not.

Pharmacists also asked the customers to complete a questionnaire.

Sampling and response rate Of 62 pharmacies, 34 (55%) participated.

Questionnaires were returned by 184 (47%) customers.

Key findings Of 392 requests for head lice products received, 219 (56%) were for over the counter (OTC) supply. Most requests (344, 87%) were for a pyrethroid product. Advice was reported to have been given on 88% of occasions unless the product had been used before (13) or

advice had been given by the GP (10). Head lice had been found by the customer on 297 (75%) occasions.

127 (69%) of customers said they intended to repeat the application and 69 (38%) intended to treat the whole family or all children irrespective of whether or not head lice was found. The quantities of product supplied were less than those recommended in current guidelines.

The authors note their concern that one-third of customers did not intend to repeat the treatment application and that over one-third intended to treat irrespective of whether or not other family members had head lice. It was concluded that the high cost of OTC treatment may be a barrier to use of appropriate quantities and to repeat applications.

ORAL HEALTH

Title, authors, source type, year and evidence grading McGovern EM, Lindsay H, Taylor A & Bryson SM.

Improving attitudes towards sugar-free medicines. UK Clinical Pharmacy Association Conference Proceedings, Blackpool (1999). **C1**

Objectives To determine pharmacists' attitudes and practice towards recommending sugar-free medicines.

Study design Interviews were conducted with 100 community pharmacists in 1996 and repeated in 1998. In the intervening period a sugar-free (SF) substitution list was circulated to pharmacists, and health promotion initiatives with support were undertaken. Questions covered attitudes towards provision of SF medicines, whether the pharmacist might attempt to persuade a customer to change to an SF version and advice offered when a sugar-containing medicine was sold. Ten pharmacies collected data for two weeks on all paediatric over the counter medicines sold and customers were asked about their attitudes towards SF medicines.

Key findings In 1996 and 1998 respectively, 35% and 64% of pharmacists said that sugar content of

a medicine would affect their product recommendation for a child. The percentage of pharmacists saying they would try to persuade a customer to change to a SF product increased from 45 to 69%. Offering dental advice when a sugar-containing product was sold was reported by 8% of pharmacists in 1996 and 21% in 1998. In the intervening period 22 pharmacists had participated in postgraduate education in oral health, 30 had participated in a local health promotion initiative on oral health and 76 reported having read relevant articles.

Most medicines for children (over 85% in both audits) were requested by name. Of the medicines recommended by the pharmacist the percentage that were SF increased from 55% to 100%. Most customers (60–70%) believed SF medicines to be important.

The authors note that pharmacists' attitudes towards SF medicines became more positive and this resulted in increased provision. Nevertheless they identified opportunities for further improvement. They conclude that a more proactive approach is needed, especially with those customers who believe SF medicines are important.

MENTAL HEALTH

Title, authors, source type, year and evidence grading

Reilly V, Bresnen G & McGovern EM. An examination of the role of the community pharmacist in managing stress and anxiety. MSc Thesis, Liverpool John Moores University (2001).

C1

Objectives To assess the involvement of community pharmacists in the management of stress and anxiety in one Local Health Care Cooperative (LHCC).

Study design Training evening held for pharmacy staff in the LHCC area. Resource manual produced for use by pharmacy staff. Interviews conducted with 12 community pharmacists and 12 pharmacy assistants. Pharmacy customers were asked to complete a questionnaire on frequency of symptoms, any treatment purchased and preferred sources of advice. Records were kept of leaflets on mental health promotion issued by pharmacy staff and self-selected by customers.

Sampling and response rate Two-week study

period where pharmacy customers were asked to complete the questionnaire.

Key findings Feedback on the training was positive, although not all LHCC staff attended. Most (88%) of those interviewed thought it was appropriate to offer advice about stress and anxiety management in the pharmacy. At least two symptoms of stress/anxiety were recognised by two-thirds of interviewees. Just over half of those interviewed knew about local self-help groups. 150 (90% response) customers completed the questionnaire. 88% reported that they had experienced symptoms of stress/anxiety and 49 (33%) had purchased a remedy.

Most people (76%) said the GP was their preferred source of advice on stress/anxiety, friends (36%) and pharmacist (13%).

866 leaflets were selected by customers with a median of 98 per pharmacy (range 41–155). The most popular resources were sleep and relaxation guides.

PREVENTION OF TRANSMISSION OF INFECTION

Title, authors, source type, year and evidence grading

Watson L, Bond CM & Gault C. A survey of community pharmacists on prevention of HIV and hepatitis B and C: current practice and attitudes in Grampian. *J Public Health* (2003). **B3**

Objectives To assess the activity, knowledge and attitudes of community pharmacists in Scotland in prevention of HIV and hepatitis B and C infections.

Study design Questionnaire survey of all 970 community pharmacies in 10 health boards in Scotland.

Sampling and response rate Response rate: 76% (740).

Key findings Most pharmacies (70%) were providing services for drug misusers. Nearly all (97%) stocked condoms. 59% of pharmacists

reported stocking extra strong condoms and two stocked dental dams. Just under two-thirds said they stocked leaflets relating to safer sex, HIV or hepatitis.

Fewer than half reported having contact lists for local agencies dealing with drug-related or sexual health problems. Knowledge of blood-borne pathogens was mixed and pharmacists' confidence in advice-giving was greater for HIV than for either hepatitis B or C. Few pharmacists were aware of recommendations for hepatitis B vaccination. Most felt that in the future pharmacists could have a greater role in prevention of these infections. The main barriers to greater involvement were time pressure, lack of a private area and lack of training.

ACCIDENTAL INJURY PREVENTION

Title, authors, source type, year and evidence grading Martin-Hamblin-GfK.

Osteoporosis Pharmacy Pilot Study (June 2002). **B3**

Objectives

- (1) To evaluate whether an osteoporosis screening service model is effective from the perspective of patients, GPs, the primary care team and the pharmacist.
- (2) To understand if the community pharmacy is an effective/suitable forum to identify patients at high risk of future fracture.
- (3) To gain an understanding of the programme's impact on patients' perception of the role of the pharmacy and the perceived benefits to patients.
- (4) To understand if the Patient Group Direction element of the service model is effective to allow timely access to treatment (not implemented, as Patient Group Direction not available for the pilot).

Study design Pilot osteoporosis screening scheme based in one community pharmacy. Telephone interviews with clients (29 low risk from assessment questionnaire; 75 low risk from bone scan; 29 osteoporotic). Unstructured interviews with health professionals (pharmacist, pharmacy assistants, nurse, GPs, pharmaceutical advisors). Face to face interviews with pharmacy users in the target age group (60+ years).

Key findings Most clients were either invited to take part by pharmacy staff (43%) or saw a poster at the pharmacy (35%). Only 2% became aware of the service through posters at the GP surgery. 228

patients completed a Risk Assessment questionnaire, of whom 49 (21%) were found to be low risk. The remainder had a bone scan and 36 were found to be osteoporotic.

Most patients rated pharmacy staff as extremely/very accessible (90%) and professional (83%). Over 90% rated the knowledgeability and clarity of explanation by the nurse conducting the bone scan as extremely/very. The availability of the screening service at a local pharmacy was highly valued (89% giving the top rating). Over three-quarters valued the ability of the pharmacist to prescribe medication without having to visit the doctor. Three-quarters thought the pharmacy setting was more convenient than their doctor's surgery although only just over a half said this would make them more likely to use the service. Most said they would use the screening programme again and would recommend it to others. 80% of patients felt they were treated with complete privacy and confidentiality, with 18% reporting 'a degree' of privacy and confidentiality and 2% not being treated with any privacy and confidentiality. When asked to state any perceived disadvantages, 5% said lack of space, 4% problems with the shop environment and 2% no proper waiting room. 1% said that doctors were more knowledgeable. Commitment and enthusiasm of those involved was found to be a significant factor and the authors say it should be 'an important consideration in the selection of pharmacies involved in any future scheme'.

Title, authors, source type, year and evidence grading McGovern EM, Tennant S & Mackay C.

Audit of returned medicines to community pharmacies. Royal Pharmaceutical Society of Great Britain Local Health Care Cooperative Conference (2001). **C1**

Objectives To assess the quantities and types of medicines returned to community pharmacies.

Study design For four weeks 10 community pharmacies recorded all medicines returned excluding those dispensed more than 12 months earlier and over the counter medicines. Data

recorded included the name of the medicine, quantity returned, reason for return and originating GP practice. The cost of each returned item was calculated.

Key findings Over the four week period, 256 items with a value of £2411 were returned by 100 patients. The median number of returned items was 2 (range 1–17). The main reasons for return of medicines were because therapy had been altered (54% of patients) or the patient had died (16% of patients). Eleven patients (11%) returned 13 items because of an adverse reaction. The main

therapeutic category was cardiovascular (76 items, 30%). The authors report there was evidence of excessive quantities having been prescribed. Three pharmacies and two general practitioner surgeries

accounted for 61% and 68% of the returns respectively. The results were discussed locally and the authors report that some changes to prescribing frequency were agreed.

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

Title, authors, source type, year and evidence grading

Aston University/MEL Research. Consumer expectations of community pharmaceutical services. Report to the Department of Health (1991). **B3**

Objectives To determine consumer views of health information leaflets.

Study design Self-completion postal questionnaire.

Consumers were asked if they had noticed any written material (leaflets or booklets) available free of charge at their pharmacy; if so, whether they had taken any away; if so, whether they had found the material useful.

Sampling and response rate 224 respondents.

Key findings Nearly two-thirds of 'high users' of pharmacies had noticed leaflets and 37% had both noticed leaflets and taken them away to read. For the 'general population' 48% had noticed leaflets and 23% had noticed them and taken them away. 13% of high users had seen and taken leaflets and rated them as very useful compared with 5% of the general population. Customers in younger

(under 30 years and 30–44 years) age groups were more likely to have seen leaflets (70%). However, these groups were less likely to have taken away and read leaflets. In the 'retired' group, 40% had seen them and 20% reported taking leaflets. Men and women were equally likely to have noticed leaflets but women were more likely to have taken them away and read them.

Over a quarter of respondents reported difficulty in identifying the pharmacist and a similar proportion believe 'the pharmacist prefers to keep out of sight'.

'Two-thirds of respondents would like to be able to talk to the pharmacist in private, while only 5% had found and used such facilities to date'.

Leaflets passively displayed were missed by nearly half the consumers.

The authors concluded 'There are still many people who are unaware of the pharmacist's role as an adviser on general health matters'.

Other comments The authors comment that elderly people were less likely to notice leaflets and to take them away.

Title, authors, source type, year and evidence grading

Coggans N, Johnson L, McKellar S, Grant L & Parr RM. Health promotion in community pharmacy: perceptions and expectations of consumers and health professionals. Department of Pharmaceutical Sciences, University of Strathclyde Report commissioned by the Scottish Office (June 2000). **C1**

Objectives The aims were to identify:

- (1) the aspects of health promotion to which pharmacy customers were most receptive;
- (2) what methods are appropriate for delivery of pharmacy health promotion.

Study design Semi-structured interviews with 601 pharmacy customers; 30 pharmacists; 30 pharmacy assistants. Interviews were taped and transcribed. Setting: five health board areas in Scotland. Delphi panel of 24 stakeholders in community health promotion for consensus on how and in what ways community pharmacy can contribute to the health of pharmacy customers.

Sampling and response rate Twenty customers were interviewed in each of 30 participating pharmacies. Customers were approached when they had completed their transaction (or sometimes while waiting for their prescription to be dispensed). No refusal rate stated.

Authors comment that the sample included a higher proportion of women, older people and professional people than the general population.

Key findings Of the customers interviewed, 37% had visited a pharmacy at least once a week, 17% at least once a fortnight, and 32% at least once a month. Women reported visiting pharmacies more often than men. 86% were willing to discuss their prescribed medicine with the pharmacist if they were having problems. 84% were willing to seek pharmacy advice about minor health problems. Less than one-third (32%) were willing to seek advice on healthy eating in the pharmacy. 22% said that either they did not see this as part of the role of community pharmacy or that it had not occurred to them that pharmacies could provide such advice. Among smokers who could be considered to be contemplating quitting, 66% felt positive about obtaining advice on smoking cessation in the pharmacy. One-fifth (20%) were willing to seek advice about exercise from the pharmacy.

When asked about willingness to get help on a sensitive or personal problem in the pharmacy, 33% said yes and 52% said no. The pharmacy was perceived to provide adequate privacy for discussion of sensitive topics by 18% of customers, with 68% saying no. 68% believed their discussions in the pharmacy would be confidential, the remainder giving negative or uncertain responses. Women were significantly more likely than men to say that they would discuss a sensitive subject and that confidentiality would be maintained. Leaflets were seen by customers as a principal source of information with 70% saying they

obtained information this way. Pharmacists perceived sun protection, prescribed medicines and smoking cessation as being the health topics most acceptable to the public for pharmacy involvement. Diet, exercise and 'sensitive topics' were seen as much less acceptable. Pharmacists were 'willing and eager' to discuss a range of health issues with customers, although there was some reluctance in relation to lifestyle issues as well as awareness of privacy as an issue.

The Delphi group rated priority targets:

1. Increase the proportion of customers who perceive there to be enough privacy in the pharmacy to discuss something sensitive or personal.
2. Increase the proportion of pharmacy customers who believe that all discussions with pharmacists are treated as confidential.
3. Increase public willingness to use community pharmacy for smoking cessation.
4. Increase the proportion of customers willing to discuss any problems with their prescribed medicines with the pharmacist.
5. Maximise the availability and potential of health education leaflets.

Increasing public willingness to use pharmacies for advice on healthy eating and exercise were ranked sixth and eighth respectively.

Other comments The authors comment that: (1) the findings indicate a widespread perception that community pharmacy does not provide sufficient privacy for discussion of sensitive topics; (2) there is a need to reassure the public about confidentiality being part of pharmacy's professional ethos.

Title, authors, source type, year and evidence grading Shafford A & Sharpe K.

The pharmacist as a health educator. Research Report 24, Health Education Authority (1989). **B3**

Objectives To study the perceived and actual needs of community pharmacists in order to develop their role as health educators.

Study design Self-completion postal survey. Pro forma diary of health enquiries.

Sampling and response rate Survey sent to all community pharmacists in North East Thames Regional Health Authority (897). Response rate: 58% after two reminders. Comparison of

pharmacy ownership type of responders with regional data showed a similar profile. Pro forma diary of health enquiries completed by self-selected sub-sample. The profile of pharmacy ownership type was similar to regional profile.

Key findings Of the survey respondents, 61.7% reported having a suitable area or room for confidential discussions. One in four pharmacies had a consultation room. 74% reported that their undergraduate education gave them 'no' or 'poor' training in advice-giving on health education topics and 48% said this about their pre-registration training.

45% reported displaying health education leaflets and 56% believed leaflets to be of 'great' or 'very great' importance. Advice-giving was reported as of 'great importance' on prescribed medicines by 52% of respondents; over the counter medicines by 45% and health education by 18%. Pro forma diaries of health enquiries showed that 3% of recorded enquiries were on general health queries. The busiest time of day for these enquiries coincided with the busiest time for dispensing. The

time taken to deal with general health queries was longer than that for symptom, OTC or dispensed medicine queries.

The authors concluded that 'at present, the general public do not see the pharmacist as a general source of health information' and that 'it is important to educate and encourage the general public to use the community pharmacist as a source of general health information'.

Title, authors, source type, year and evidence grading Hariri, S.

Multimedia health promotion in community pharmacy. PhD thesis Department of Pharmacy, King's College, London (1998). **C1**

Objectives To investigate the usability of multimedia touch screen kiosks as tools for health promotion within the community pharmacy setting; to examine the effect of such a kiosk on the public's use of their community pharmacy as a source of health information.

Study design A touch screen multimedia kiosk with the CardioPharm program was installed initially in three community pharmacies (study 1) and subsequently in three supermarket pharmacies (study 2). Data were collected as users accessed the software. Observation was conducted in the pharmacies (study 1). Interviews were conducted with the pharmacists (study 1). Users in the three supermarket pharmacies were asked to complete a questionnaire.

Sampling and response rate Questionnaire response rate not known.

Key findings The total numbers of user

interactions were 847 in study 1 and 11,590 in study 2. The completion rates were 31% and 37% respectively. Most users in both studies were aged below 40 and had a healthy Body Mass Index (BMI) of 25 or less.

There was a significant increase in the health promotion activity of the pharmacies including more queries to the pharmacist and higher numbers of leaflets taken. Observation indicated that some older customers required encouragement and a demonstration by pharmacy staff before they used the kiosk.

154 users completed the questionnaire in study 2. Most agreed that touch screen systems were a good method of providing information to the public. The majority agreed that the pharmacy was an appropriate environment for information kiosks. None of the users reported having asked pharmacy staff for information or advice.

Other comments Most customers who accessed the software were in younger age groups. The reasons for the low completion rate are not known. Consideration needs to be given to how to engage older customers in use of such systems.

Stakeholder views

Title, authors, source type, year and evidence grading BMRB International

Baseline mapping study to define access to and usage of community pharmacy. Report commissioned by Royal Pharmaceutical Society of Great Britain (March 1996). **B3**

Objectives To determine who uses what type of pharmacy, when, for what (prescription medicine

related, over the counter medicine related, healthy lifestyles) and in what locations.

Study design Face-to-face, in-home structured interviews with 517 adults aged 16 years or over. Inclusion criterion was that respondents had used a pharmacy for at least one of the core components in the past year, either for themselves or for someone else.

Sampling and response rate Random Location Sampling was used, using Enumeration Districts as sampling points, with quota sampling.

Key findings Of those sampled, 94% were found to have used a pharmacy in the last year for one of the three core reasons. On average pharmacies were used once a month, with women and respondents with children under five years more frequent users. Other frequent users were those in inner cities and 'striving' ACORN (A Classification of Residential Neighbourhoods) type. Least

frequent users were 16- to 24-year-olds and 'expanding' ACORN type. Usage levels were: 90% prescriptions; 30% seeking advice on specific symptoms/problems; 10% seeking general health advice. 16- to 24-year-olds had a 'particularly low' usage for general health advice. Usage for this reason was higher among women, respondents with young children and C2DEs. Unsolicited health related advice was reported by 14% of respondents. Over half (53%) of the people receiving this advice received it twice or more often.

Title, authors, source type, year and evidence grading Hassell K, Rogers A, Noyce P & Nicolaas G The public's use of community pharmacies as a primary health care resource. Report to the Community Pharmacy Research Consortium (November 1998). **B3**

Objectives To map and describe what is currently known about how the public use pharmacies. To provide retrospective and prospective data on pharmacy usage in the context of how other primary and secondary resources are used. To explore what influences the choice of primary care service provider.

Study design Review of published literature. Secondary analysis of general population household survey and health diary data. Linked qualitative study of interviews with users and non-

users of community pharmacies.

Sampling and response rate Survey of health status and health care use by 834 residents in 346 households. Sample drawn from three areas (urban, suburban, market town/semi-rural). Screening was used and frequent health service users were over-sampled. Health diaries completed by 549 people in 215 households. Interviews with sub-sample of 41 diary respondents.

Key findings Frequency of pharmacy use was high, mainly restricted to the prescription service. Most people self-managed their conditions, with 5.5% using the community pharmacy for advice. The pharmacist's profile was perceived as 'that of a drug expert – advising on medicines not illness'.

Title, authors, source type, year and evidence grading Anderson C. Health promotion by community pharmacists. PhD thesis, King's College, London (1997). **B3**

Objectives To investigate the effect of a training programme on the role of community pharmacists in health promotion; to investigate consumers' perceptions of the community pharmacist's role

Study design Interviews with pharmacists in the Barnet High Street Health (HSH) scheme (who had participated in the training programme) and a 'control' area. Covert study of pharmacists' advice on smoking cessation in 20 HSH pharmacies and 20 controls. Consumer survey using questionnaire administered in six HSH pharmacies. Telephone survey of health authority pharmaceutical advisers in England.

Sampling and response rate Ten HSH scheme pharmacists and ten 'controls' were interviewed. 592 consumers took part in six participating pharmacies in the HSH scheme.

Key findings Interview data showed that the HSH pharmacists were more actively involved in health promotion and had a more holistic view of health. They perceived different barriers to implementing the health promotion role. Pharmacists who received training had increased knowledge of health promotion, they expressed a desire to spend less time dispensing prescriptions and more time advising customers. The covert research showed that HSH pharmacists spent significantly longer in the consultation on smoking cessation and used leaflets more appropriately.

Consumers believed that the doctor was the best and most convenient person to go to for advice about staying healthy. 40% of consumers believed that it was the 'usual job' of the pharmacist to advise on staying healthy but only 15% had ever

asked for such advice.

The telephone survey data showed that 57% of health authorities reported at least some health promotion activity.

Title, authors, source type, year and evidence grading Anonymous.

The Pharmacy Healthcare Scheme (Qualitative study). Health Education Authority. Research Report (1993). **B3**

Objectives To examine the overall work of the Pharmacy Healthcare Scheme from the pharmacist's perspective; to look at the role of the pharmacist in health promotion.

Study design Qualitative interview study conducted in parallel with quantitative survey.

Sampling and response rate Letter of invitation sent to 180 community pharmacies in England (including London), Scotland and Wales. Half were multiples and half independents. Half were 'in town' and half 'out of town'. 21% (39) of pharmacists agreed to be interviewed, 24% declined and 55% did not reply. London had an 11% agreement rate and Edinburgh 50%. Of the 39 interviewees 17 were from independents and 22 from multiples.

Key findings The approximate time split between dispensing / responding to symptoms and admin/paperwork was 70/30%. None of the pharmacists identified a specific time allocation for

health promotion. The report states that 5% of overall time (within dispensing / responding to symptoms) was spent on health promotion. Although pharmacists perceived health promotion as important the researchers noted that: 'pharmacists' health promotion role is reactive not proactive'; 'the pharmacist's role is very much orientated towards medical advice, health promotion happens during this process'; 'advice is provided to the public on request as pharmacists do not provide health promotion advice directly' and 'the pharmacist's health promotion role is developing – moving away from pure dispensing. 'A sizeable number' of pharmacists believed that the public do not recognise the extent of their training and skills and see them as shopkeepers, not health educators. Pharmacists reported being isolated from the primary health care team, with no structured or formal communication channels and little collaborative work.

Other comments The report recommended national publicity to raise public awareness of the pharmacist's role in health promotion. Research on the public's perceptions of pharmacy was also recommended.

Title, authors, source type, year and evidence grading Health Promotion Authority Wales. Pharmacy Health Care Scheme survey (Wales). Report.. Health Promotion Authority Wales & Welsh School of Pharmacy (1991). **B3**

Objectives Determine levels of health promoting activities by community pharmacists in Wales; to identify practical measures to increase involvement.

Study design Self-completion postal questionnaire.

Sampling and response rate 1081 pharmacists in Wales (all practising pharmacists registered since 1940). Response rate: 67% (724) after two

reminders. The authors state that 522 pharmacy premises were represented in the survey returns. Comparison of years registered, gender and employment status for responders, late responders and non-responders showed similar profiles. In statistical analysis $P < 0.001$ assigned as significant.

Key findings Only 13.5% rated health promotion as being of 'little' or 'no' importance. Figures for specific services/ activities were: pregnancy testing 310; weight measurement 156; sale of needles/syringes 151; blood pressure measurement 80; needle / syringe exchange 40; cholesterol testing 16; lung function testing 7. 106 and 118 respondents reported planning to introduce blood pressure and cholesterol measurement respectively.

Barriers to health promotion activities were reported as: finance 54%; public apathy (34%); professional relationships with GPs (31%) and lack of knowledge (22%) .

Other comments Commentary notes that

'Pharmaceutical Care: the future for community pharmacy' recommended that diagnostic and screening services should be provided by community pharmacies and discusses this aspect.

Title, authors, source type, year and evidence grading BMRB

Pharmacy Healthcare scheme (Quantitative study). Health Education Authority. Report (1993). **B3**

Objectives Examine how pharmacists view their role in health promotion and health education; to obtain pharmacists' views as users of the Pharmacy Healthcare Scheme on its effectiveness.

Study design Pre-piloted postal questionnaire.

Sampling and response rate A total of 1986 community pharmacies were sampled from London, rest of England, Scotland, Wales and Northern Ireland. Response rate: 67% after one reminder. A higher percentage (91%) of Boots pharmacists replied cf. 64% of others. At analysis, data were weighted to the profile of the original sample to correct for differing response rates.

Key findings Of respondents, 45% worked for independents and 18% at multiples with 50

branches. Most pharmacists reported that Pharmacy Healthcare Scheme leaflets were left to be picked up by customers with only a small number of leaflets taken on the pharmacist's recommendation. The researchers note that 'there is clearly a desire amongst many pharmacists to become more involved in the area of health promotion and education'. 77% reported spending one, two or three hours a week on health promotion and most said this was increasing. 84% reported insufficient financial incentives and 66% insufficient time for health promotion. Pharmacists were also 'keen for the public to be better educated about the role of pharmacists in health care in general'.

Other comments Pharmacists ranked the relative importance of pharmacists being able to give informed advice on specific topics as: smoking 54%; diet/nutrition 37%; family planning 21%; exercise 14%; drinking 13%.

Title, authors, source type, year and evidence grading Dewsbury-Mason C

Community pharmacists and health promotion training, activities and attitudes. MSc thesis, University of Kent (1998). **B3**

Study design Cross-sectional survey. Questionnaire to 100 community pharmacists in one UK area.

Sampling and response rate Response rate: 66%.

Key findings A holistic view of health was not predominant among community pharmacists and only 5% identified health as 'an absence of illness'. 86% of pharmacists said they would be willing to undertake further training in health promotion. Just over half (53%) had undertaken some training in health promotion. Time, remuneration and premises were seen as the main barriers to involvement in health promotion.

Title, authors, source type, year and evidence grading Elliott J.

The role of community pharmacists in relation to the primary health care team. Report commissioned by the Health Education Authority (1996). **B3**

Objectives Identify a sample of community pharmacists working with the primary health care

team; areas of collaboration; the extent to which the focus of collaboration involved health promotion; identify barriers to team working.

Study design Postal survey of pharmacists Interviews with health authority pharmaceutical advisers (3), local pharmaceutical committee secretaries (3), community pharmacists (15), primary care team members (9).

Sampling and response rate Questionnaire sent to 373 community pharmacists in three areas (Cumbria, Liverpool, Northamptonshire). Response rate: 78% (290) after one reminder.

Semi-structured interviews with sample of 15 community pharmacists (self-reported collaboration with primary care team in questionnaire) and other health professionals (9 of 16 agreed to be interviewed) identified by the sub-sample of community pharmacists as working with them.

Key findings Regular meetings with primary health care team reported by 14% of survey respondents. Collaboration on projects or initiatives reported by 13%. Collaboration focused on prescribing and medicines. Pharmacists dispensing higher prescription numbers were more likely to report collaboration. Barriers to collaboration were: lack of time; lack of funding; lack of opportunity to meet other health professionals; perception that pharmacist's input

not wanted. Seven of 18 pharmacists who made additional comments said they 'had not been asked' to collaborate. Close proximity to the GP practice with no other pharmacies nearby was associated with collaboration.

Interview data suggested that survey results overestimated the amount of collaboration and teamwork (10 of 15 pharmacists self-reporting collaborative work were doing so, the remainder were minimal or intermittent).

Interviews with pharmaceutical advisers identified local initiatives organised by health authorities. However, these were 'for limited time periods, with limited funding and inadequate evaluation' and generally involved an enthusiastic minority of pharmacists.

Other comments One-third (32%) of pharmacists reported that most of their prescriptions came from one GP practice; 19% from two; 21% from three to four; and 29% from more than four.

Title, authors, source type, year and evidence grading Scott K.

Involvement of community pharmacists in Health Education Authority (HEA) primary health care team workshops – Report on qualitative evaluation. Report for HEA (1994). **B3**

Objectives To explore: community pharmacists' perceptions of their role within primary care; primary health care team PHCT workers' perceptions of the community pharmacist; the nature and extent of working relationships; initial and longer term impact of pharmacist involvement in PHCT workshops.

Study design Nine practice teams were involved. Pre-workshop interviews with eight pharmacists and 36 PHCT members. Interviews one week post-workshop with eight pharmacists and 32 PHCT members. Unclear how PHCT members were selected. Three months post-workshop, group interview with eight pharmacists and postal questionnaire to PHCT members (21 respondents).

Sampling and response rate Response rates: 100% stage 1; 90% stage 2; 72% stage 3.

Key findings Community pharmacists were rarely mentioned spontaneously as part of the PHCT.

Although PHCT members expressed confidence in individual pharmacists they often expressed concerns about community pharmacy in general in relation to possible wider roles. The main concerns were about pharmacists' lack of access to patients' full medical history and about potential conflicts arising from commercial activities. Nevertheless most PHCT members (particularly GPs, practice managers, practice nurses and district nurses) welcomed the idea of greater involvement of community pharmacists.

While the community pharmacists were pleased to be invited to attend the workshop they also expressed anxieties about what they would be able to contribute and about how their participation would be received by PHCT members. Three months after the workshop there was evidence of greater contact (pharmacists invited to practice meetings by most practices) and a number of joint activities (e.g. referral of diabetic patients to the pharmacy by the diabetic nurse and vice versa; joint GP/pharmacist asthma session for school nurses). Both pharmacists and practices reported difficulties in pharmacists being able to leave their premises to attend practice meetings.



**Royal
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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.

Public Health

a practical guide for community pharmacists



Royal
Pharmaceutical
Society
of Great Britain



Public Health

*a practical guide
for
community pharmacists*

Jointly prepared by

Pharmaceutical Services Negotiating Committee
National Pharmaceutical Association
Royal Pharmaceutical Society of Great Britain
PharmacyHealthLink

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Foreword

It is a pleasure to have been invited to write the foreword for this practical guide for community pharmacists. As the immediate past Chair of PharmacyHealthLink and President of the Faculty of Public Health, I have spent much of my time working alongside pharmacists and have been impressed by their professionalism and dedication to improving the public's health. I'm sure this guide will act as a useful reference for pharmacists. It will help them continue to develop their public health roles that have been identified in so many of the recent Government departments' policy documents.

It is often said that over six million people visit pharmacies every day. 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. 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.

Over the past few years there has been increasing recognition of the contribution that community pharmacy can make to improving the public's health and the need to integrate pharmacy into the wider public health workforce in the UK. The *Health Committee Inquiry into Public Health* recommended that '*the Government takes steps for community pharmacists to play a more active role in public health*'.

In England, the policy document *Tackling Health Inequalities: A Programme for Action* highlighted the vital role pharmacists play in improving the public's health and the importance of community settings and services in addressing health inequalities, including community pharmacies. *A Vision for Pharmacy in the New NHS* recognised the contribution that pharmacists can make to the public health agenda and makes a commitment to develop a pharmaceutical public health strategy for England by 2005, which will integrate pharmacy with the wider public health agenda and workforce. *The Vision* also reflects the public health contribution community pharmacy can make in the new pharmacy contract which will be essential to delivering public health services in community pharmacy. Under the new contract essential services provided by all community pharmacies will include the promotion of healthy lifestyles and the promotion of self-care. In addition, there will be arrangements for pharmacies to provide more specialist services in conjunction with primary care organisations.

Scotland Pharmacy for Health: The Way Forward for Pharmaceutical Public Health in Scotland recognises the potential, often untapped, contribution pharmacy can make to improving the public's health and the need to engage all pharmacists in the public health agenda and to utilise their skills and experience to the full. A Pharmaceutical Public Health Service will be one of the four core elements of the new pharmacy contract currently being negotiated in Scotland.

The National Assembly for Wales has a set of guiding principles in the *Plan for Wales*, to act now for the future, reduce poverty and achieve equality. The aim is to improve the health and well-being of people in Wales and to reduce inequalities in health. Improving quality and effectiveness of healthcare and promoting inter-agency working underpins this strategy.

In Northern Ireland, *Making it Better - A Strategy for Pharmacy in the Community* recognises that pharmacy plays an important role within the health services and the community as a whole because of the accessibility of pharmacy and, therefore, its prime position to deliver services that improve the public's health. The strategy aims to build on the traditional roles of pharmacy to make the best use of pharmacists' skills and make pharmacy an integral part of the health and social care team.

Overall the message is clear throughout the UK that pharmacy can make an important contribution to improving the public's health and reduce health inequalities. All four countries are now recognising this untapped resource and the need to engage all pharmacists in the public health agenda. In the future pharmacists will become more recognised as public health practitioners, utilising their skills and experience to the full, and they will become more integrated with the NHS and the wider public health workforce.

As public health practitioners, my colleagues and I look forward to working more closely with pharmacists in order to achieve a better and more co-ordinated primary care service for the benefit of practitioners and the public.

A handwritten signature in black ink, reading 'Sian Griffiths'. The signature is written in a cursive, flowing style.

Professor Sian Griffiths OBE

Introduction

Community pharmacists have always played a role in promoting, maintaining and improving the health of the communities they serve. They are, after all, based in the heart of communities – in rural as well as deprived inner city areas, in town centres and suburbs. Situated on high streets, in shopping centres and on housing estates, they gain a particular understanding of the needs of members of their communities through daily interactions with patients and customers. Community pharmacists are often patients' first point of contact, and for some their only contact, with a healthcare professional. Engaging with communities through day-to-day activities, which might include the provision of advice to parents of young children, the care and support of drug misusers, visits to the homes of older and housebound people and advice on smoking cessation, pharmacists already make a significant contribution to public health.

However, there is a need for community pharmacists to understand the broader concept of public health, which focuses on improving health at a population level. Public health is now firmly on the healthcare agenda and current UK policy offers an unparalleled opportunity for community pharmacists to become more involved in this wider health agenda and to be recognised as part of the public health workforce. In addition, the new contract for community pharmacy will be an important vehicle for delivering public health services in community pharmacy.

This guide explains the broader concept of public health in more detail and outlines the potential contribution that community pharmacists can make to this agenda. It also describes what steps community pharmacists can take to increase their involvement and contribution to public health at a local level in collaboration with other public health colleagues.

Objectives of the Pack

This resource pack will help you to gain a greater understanding of:

- ◆ What public health is.
- ◆ How public health is linked to community pharmacy.
- ◆ Why public health is important to community pharmacy and why community pharmacists should get involved.
- ◆ The current policy context.
- ◆ How community pharmacists can enhance their contribution to public health.
- ◆ How public health is funded.
- ◆ How to approach the primary care organisation (PCO)* to deliver a public health service.

The pack also identifies a wide range of further sources of information to ensure you have everything you need to get started.

* In this resource pack the term primary care organisation (PCO) is a generic term that refers to Primary Care Trusts in England, Local Health Boards in Wales, Local Health and Social Care Groups in Northern Ireland, and Local Health Care Co-operatives in Scotland.

What is Public Health?

Introduction

Public health is the study and practice of how best to improve the overall health, and health gain, of populations rather than individuals' health. The most widely used and over-arching definition of public health was coined by Sir Donald Acheson in 1988 as:

'the science and art of preventing disease, prolonging life and promoting, protecting and improving health through the organised efforts of society'.¹

This definition encompasses a very wide range of activities and emphasises the importance of a strategic approach to public health as well as collaboration between different groups and individuals to achieve these aims.

The Faculty of Public Health (see *Appendix 1*) describes an approach to public health which:

- ◆ Emphasises the collective responsibility for improvement in health and on prevention of disease.
- ◆ Recognises the key role of the state, linked to a concern for the underlying socio-economic and wider determinants of health, as well as disease.
- ◆ Is multidisciplinary, incorporating quantitative as well as qualitative methods.
- ◆ Emphasises partnerships with all those who contribute to the health of the population.

Work undertaken in public health principally falls within three key domains (*Table 1*).

Table 1 Areas covered within the three key domains

Health Protection and Prevention	Health and Social Care	Health Improvement
<input type="checkbox"/> Disease and injury prevention	<input type="checkbox"/> Quality	<input type="checkbox"/> Employment
<input type="checkbox"/> Communicable disease control	<input type="checkbox"/> Clinical effectiveness	<input type="checkbox"/> Housing
<input type="checkbox"/> Environmental health	<input type="checkbox"/> Efficiency	<input type="checkbox"/> Family/community
<input type="checkbox"/> Emergency planning	<input type="checkbox"/> Service planning	<input type="checkbox"/> Education
	<input type="checkbox"/> Audit and evaluation	<input type="checkbox"/> Inequalities/exclusion
	<input type="checkbox"/> Clinical governance	<input type="checkbox"/> Lifestyle advice

Across these three domains the Faculty of Public Health identifies 10 core elements of public health practice, which form the basis of competency standards. These 10 core elements provide an overview of the breadth of skills that all those working in public health need to maximise their contribution to health gain, whatever their area of work:

- ◆ Surveying and assessing the population's health and well-being.
- ◆ Promoting and protecting the population's health and well-being.
- ◆ Developing quality and risk management within an evaluative culture.
- ◆ Working collaboratively for health.
- ◆ Developing health programmes and services and reducing inequalities.
- ◆ Developing and implementing policy and strategy.
- ◆ Working with and for communities.
- ◆ Strategic leadership.
- ◆ Research and development.
- ◆ Ethically managing self, people and resources.

More information about these core elements is available on page 28.

Most community pharmacists' everyday practice involves work undertaken in the two domains of health improvement and health and social care. Increasingly community pharmacists are also undertaking work in health protection and prevention² and this trend is likely to continue.

The Origins of Public Health

Public health has been recognised as a specialist field of practice in the UK since the middle of the nineteenth century when the foundations of the public health movement were laid by the appointment of the first medical officers of health and the creation of statutory sanitary inspectors.

In 1848, Parliament passed the first Public Health Act as a direct result of Sir Edwin Chadwick's *General Report on the Sanitary Conditions of the Labouring Population of Great Britain*. Chadwick was convinced that socio-economic class was linked to health and demonstrated that the average age at death in Liverpool at that time was 35 years for gentry and professionals, but only 15 years for labourers, mechanics and servants. Chadwick managed to convince Parliament that widespread disease amongst the lower social classes resulted in an enormous cost to society, when taking into account time off for funerals and lost labour. As a result of the Act employers were required to implement measures that would reduce the incidence of disease and ill health at work.

Public Health Today

A modern day public health approach accepts the importance of collective responsibility for improvement in health and on the prevention of disease. There is much greater evidence available on and practice in public health now than in Chadwick's day but the emphasis remains on the State to lead health improvement and set out priorities for action. Today, however, health professionals, industry, public service organisations and, increasingly, individuals themselves play a role in the prevention of disease.

It may be over a century and a half since the first Public Health Act was passed but many of the issues identified by Chadwick are still relevant today, particularly the prevalence and impact of health inequalities. In addition, the primary cause of illness to society is shifting away from communicable (mainly infectious) diseases and accidents at work towards illnesses caused by non-communicable or chronic diseases such as diabetes, coronary heart disease (CHD) and stroke.

Health Inequalities

During the twentieth century there were considerable improvements in the nation's overall health. For example, life expectancy at birth for women is now 80 years compared with 48 in 1900; for men it is 75, compared with 44. Over the same period infant mortality fell from over 1 in 10 to 6 per 1000. Unfortunately these improvements have not always been achieved at a similar rate among all social groups, or in all parts of the UK. In particular, people in lower socio-economic groups tend to be ill more often and to die sooner³ and suffer more long-standing and limiting illnesses. The death rate in men under 65 years is 1.6 times higher in the North West Region than in the South East. In Manchester, the death rate for people under 65 years is over three times higher than in Kingston and Richmond in the south.⁴

Inequalities begin very early in life, even before conception, and continue throughout life. Health inequalities also cross generations, affecting life chances and quality of life not only of adults, but also of their children and grandchildren.⁴ Babies born to poorer families are more likely to be premature, are at greater risk of infant mortality and have a greater likelihood of poverty, impaired development and chronic disease later in life. Babies with fathers in social classes IV and V have a birth-weight that is on average 130 grams lower than that of babies in social classes I and II. Low birth-weight is closely associated with death in infancy, as well as heart disease, diabetes and hypertension in later life.

Because of the importance of addressing health inequalities, there are now numerous health inequalities targets across the NHS (see boxed text).

Health Inequalities Targets:

- Reduce inequalities in health outcomes by 10% as measured by infant mortality and life expectancy by 2010 (England).⁵
- Reduce the gap in life expectancy between those living in the fifth most deprived electoral wards and the average life expectancy by 50% for both men and women by 2010 (Northern Ireland).⁶
- Health headline targets for the period 1995 to 2010 are, to reduce: premature mortality from CHD by 50%; premature mortality from cancer by 20%; smoking among 12 to 15-year-olds from 14% to 11%; the proportion of women smoking during pregnancy from 29% to 20%; the incidence of men and women exceeding weekly limits from 33% to 29% and 13% to 11% respectively; teenage pregnancy rate among 13 to 15-year-olds by 20%; 60% of 5-year-old children with no experience of dental disease 16 (Scotland).⁷
- In Wales, there are health inequalities targets for cancer, mental health, children, CHD and older people. The aim of these targets is to provide focus and direction for improving health and reducing health inequalities in Wales. For example, the health outcome target for cancer is to reduce cancer deaths in those aged below 75 years by 20% by 2012; and the health outcome target for CHD is to reduce deaths from CHD in 65 to 74-year-olds from 600 per 100,000 in 2002 to 400 per 100,000 by 2012.⁸

Tackling inequalities centres around breaking the cycle of ill health, particularly in focusing on tackling the broader determinants of health and those factors that particularly influence the health of those on low incomes.

The Broader Determinants of Health

An understanding of the broader determinants of health is necessary for any pharmacist who wishes to contribute towards reducing health inequalities.

The broader determinants of health (see *Figure 1*) reflect the environment in which people live that influence their health beliefs, expectations and their health choices. These determinants, and their effects on inequalities, are comprehensively outlined in the report *Independent Inquiry into Inequalities in Health* chaired by Sir Donald Acheson⁹. This report made 39 recommendations, underpinned by a broad analysis of the social, economic and environmental determinants of health inequalities, which served as the basis for a number of successive UK government strategy documents to tackle inequalities. Further information on the broader determinants of health and priorities for tackling inequalities is available from each of the UK government strategies.

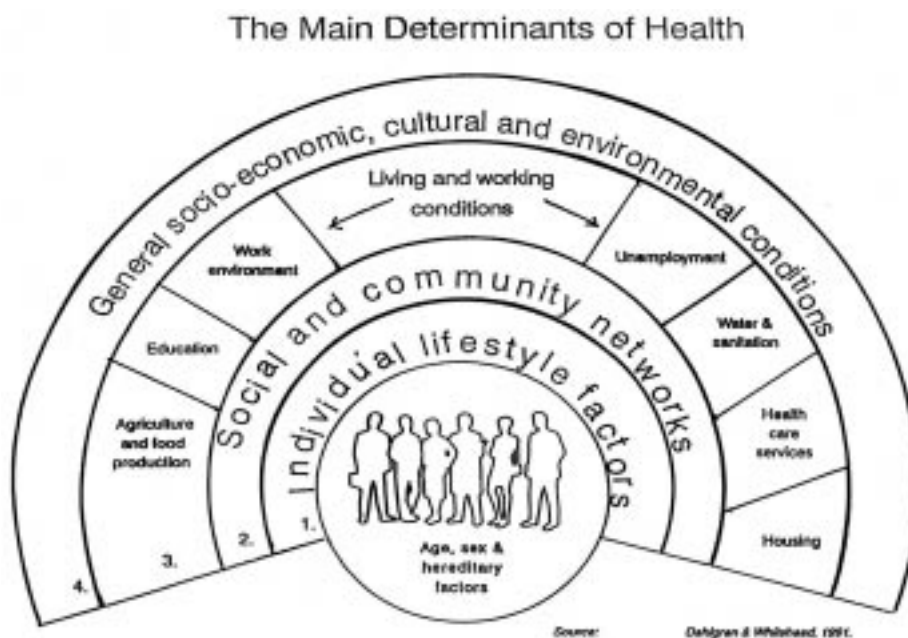


Figure 1. Dahlgren and Whitehead (1991)¹⁰ pictorially illustrated the main determinants of health.

The report concluded that the root causes of ill health were so varied, they could not be dealt with by focusing on 'health' or the health services alone. The main conclusions of the report were:

- ◆ The weight of scientific evidence supports a socio-economic explanation of health inequalities. This traces the roots of ill health to such determinants as income, education and employment as well as to the material environment and lifestyle.
- ◆ Action to tackle health inequalities thus reaches far beyond the remit of the Department of Health. Some relate to the whole government while others relate to particular departments.

The key areas for future policy development were identified as:

- ◆ financial – poverty, employment, income, tax and benefits;
- ◆ education;
- ◆ environmental – housing, mobility, transport and pollution;
- ◆ nutrition and the common agricultural policy.

It was felt that a high priority should be given to the health of families with children, and that further steps should be taken to reduce income inequalities and improve the living standards of poor households.

Who are the Public Health Workforce?

In line with the key findings of the *Independent Inquiry into Inequalities in Health*⁹ there are many employees (including voluntary workers) who contribute to improving the public's health and thus become part of the public health workforce.

*The Report of the Chief Medical Officer's Project to Strengthen the Public Health Function*¹¹ provided a framework for assessing the contribution of the broader public health workforce to the public health function. In particular the document referred to three main categories of employees:

- (1) wider contributors
- (2) practitioners
- (3) specialists.

In addition there are also many others working in public health such as researchers, academics, government departments, regional and local authorities and members of the public, but the bulk of the employed public health workforce is covered by these three main categories.

Wider Contributors

Wider contributors are professionals, who have an impact on public health as part of their work, but who may not recognise this as such, for example, teachers and social services employees. This part of the workforce is important because they can reach people who are not in contact with the health service and refer them on to sources of advice and support. In terms of their development they '*need to adopt a public health "mindset", with a greater appreciation of how their work can make a difference to health and well-being and where more specialist support can be obtained locally*'.

This definition also applies to community pharmacy support staff who advise the public on the safe use of medicines, minor ailments and healthy lifestyles.

Practitioners

Practitioners are a smaller number of professionals who '*spend a major part, or all of their time, in public health practice. These professionals have in-depth knowledge and skills in their specific areas and are a vital part of the workforce*'.

Community pharmacists are 'public health practitioners' when they advise the public on safe use of medicines, the treatment of minor ailments and on healthy lifestyle choices. They may also provide specific public health interventions as part of a broader NHS service, for example, weight-loss clinics, specialist smoking cessation advice or drug misuse services.

Specialists

Specialist advisors in public health are usually *Public health consultants and specialists working at a strategic or senior management level*. They play a role in developing public health programmes and often have specific scientific expertise.

Pharmacists working in strategic advisory positions in health commissioning organisations such as Strategic Health Authorities may be considered as 'specialists' in pharmaceutical public health. Work is currently ongoing to investigate the potential for pharmacy specialists to be formally recognised, for example, by inclusion on the Voluntary Public Health Register held by the Royal Institute of Public Health. More information on this initiative is available at www.publichealthregister.org.uk

How Effective is Public Health?

The Evidence Base for Public Health

In an attempt to improve the evidence base, PharmacyHealthLink (PHLink), previously known as the Pharmacy Healthcare Scheme, and the Royal Pharmaceutical Society of Great Britain (RPSGB) have published two reports, which demonstrate what community pharmacists can contribute to health development (i.e. public health and health promotion).

The first report is a systematic literature review of the *published* evidence relating to the contribution of community pharmacy to health development, both in the UK and internationally from 1900-2001.¹²

The review of the published evidence covered 35 trials or experimental studies reported in 40 papers. Of these, 18 were UK studies, 14 were from the US or Canada and 8 from Europe. There were also 34 descriptive studies, of which 14 were from the UK, 12 were from the US or Canada and 8 from Europe.

The second report is a review of *non-peer reviewed* literature and *unpublished* work (i.e. the grey literature). It includes masters and doctoral research at schools of pharmacy, reports to Government bodies and presentations at conferences.¹³

The review of this grey literature included 37 studies.

The aim of these reviews was to determine which health development activities are most likely to be effective in a community pharmacy setting, how they might best be provided, and to identify areas for further research.

Almost all of the evidence identified for both reviews was from a community setting, i.e. activities either taking place in community pharmacies or carried out by community pharmacists in settings such as nursing homes or general medical practice. The researchers looked for evidence involving community pharmacists in the:

- ◆ promotion of health and well being;
- ◆ prevention of illness;
- ◆ identification of ill health;
- ◆ maintenance of health for those with chronic or potentially long-term conditions.

The reviews did not cover pharmacists' advice on the treatment of minor illnesses or prescribing and prescription reviews.

The key service areas covered across the two reviews were:

- ◆ Smoking cessation.
- ◆ CHD: lipid management, identifying risk factors for CHD, secondary prevention with aspirin, anticoagulation, obesity and weight reduction.
- ◆ Skin cancer prevention.
- ◆ Drug misuse.
- ◆ Sexual health (including emergency hormonal contraception).
- ◆ Immunisation.
- ◆ Head lice management.
- ◆ Oral health.
- ◆ Mental health.
- ◆ Accidental injury prevention.
- ◆ Folic acid and pregnancy.
- ◆ Asthma.
- ◆ Diabetes.
- ◆ Nutrition and physical activity.
- ◆ Multi-topic health promotion programmes.

The reviews concluded that the literature clearly demonstrates the potential of community pharmacists to contribute to health development (i.e. public health and health promotion).

The following section describes some of the evidence base covered by these reviews in more detail, and the conclusions that were drawn. It also describes useful additional studies that were not included in the PHLink/RPSGB reviews.

Smoking Cessation

Smoking cessation is an obvious area for community pharmacist involvement. Indeed, a recent UK survey of current activities showed that smoking cessation services are the most common health development activity in community pharmacies at present. Many pharmacists are working as part of the wider primary healthcare team and with the NHS smoking cessation services to provide specialist advice. Some of these schemes were set up to be health authority-wide (where all pharmacists were invited to take part), while others were targeted in Health Action Zone (HAZ) areas or localities less well-covered by other smoking cessation services and at low income clients.

What is the evidence that such services are effective? Two UK randomised controlled trials (RCTs), one conducted in Scotland¹⁴ and the other in Northern Ireland,¹⁵ demonstrate that there is good clinical and cost-effectiveness evidence from the peer-reviewed literature. Abstinence rates in the Scottish trial were 12% for the intervention and 7% for the controls at nine months, and in the Northern Ireland trial, 14.3% for the intervention and 2.7% for the controls at one year ($P<0.001$). A health economic analysis of the Scottish 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 for each life saved.¹⁶ In a health economic evaluation of a pilot study prior to the Northern Ireland trial the cost per life year saved in the intervention arm ranged from £196.76 to £351.45 for men and £181.35 to £722 for women.¹⁷

These RCTs and other studies in the published literature indicate that community pharmacists trained in behaviour change methods are effective agents in helping clients to stop smoking.¹² The non peer-reviewed literature confirms that training increases knowledge, self-confidence and positive attitudes of pharmacists and their staff in relation to smoking cessation. The grey literature also shows the potential benefit of the involvement of pharmacy staff in the training and provision of the service.¹³

Additional studies in this area include:

- ◆ A study evaluated the Pro-Change adult smokers programme in one community pharmacy and three GP practices in Northumberland. The programme was particularly aimed at low income and unemployed smokers. The Pro-Change programme involved an interactive multimedia computer program, self-help material and support from trained health professionals. The programme was found to reach the target audience of low income smokers, and self-reported quit rates were comparable to other reported studies. Siting the programme in the community pharmacy widened access compared with provision in general practices alone – of the 258 people who accessed the programme over the six-month pilot, 159 did so in the *one* community pharmacy compared to 99 in the *three* general practices.¹⁸

Coronary Heart Disease

CHD is seen as a high priority by the government, and community pharmacists have a unique opportunity to demonstrate their skills and knowledge in dealing with this client group. The potential contribution of pharmacists in CHD is to:

- ◆ Provide sound information, advice and support on stopping smoking, healthy eating and physical activity.
- ◆ Get involved in smoking cessation services:
 - establish and record smoking status;
 - smoking cessation clinics;
 - patient group directions (PGDs) for nicotine replacement therapy (NRT);
 - training on use of NRT for pharmacy staff and other health professionals;
 - distribution of free NRT.
- ◆ Provide medicines management services to support people on medication (and their carers) for the prevention or treatment of CHD and stroke.
- ◆ Provide information on local screening services and the need for regular checks of, for example, blood pressure and blood lipid levels.
- ◆ Participate in initiatives to identify people at high risk of CHD and stroke.
- ◆ Provide warfarin monitoring to reduce the incidence of second heart attacks and stroke.
- ◆ Help with the implementation of the National Service Framework (NSF) for CHD.
- ◆ Get involved in healthy schools or workplace initiatives (e.g. giving talks on the benefits of stopping smoking).
- ◆ Provide a smoke-free environment in the pharmacy.
- ◆ Learn to recognise a heart attack and what to do (including resuscitation skills).
- ◆ Educate the public about the symptoms of a heart attack and what action to take.

And in deprived areas for pharmacists also to:

- ◆ Provide information on maximising welfare benefits for low income families.
- ◆ Participate in healthy living centre initiatives.
- ◆ Work with shopkeepers/local authorities to improve affordable access to healthy foods (especially fruit and vegetables).
- ◆ Provide information on exercise on prescription.
- ◆ Participate in NRT voucher schemes.

What is the evidence that community pharmacists can be effective in providing CHD-related services?

The PHLink/RPSGB review covered several areas including:

- ◆ Lipid management.
- ◆ Identifying risk factors for CHD.
- ◆ Secondary prevention with aspirin.
- ◆ Anticoagulation.
- ◆ Obesity and weight reduction.

Lipid management

Evidence from US and Canadian RCTs in lipid management in the prevention of heart disease showed that lipid management services provided by community pharmacists are effective in:¹⁹⁻²²

- ◆ Helping clients to achieve target lipid levels.
- ◆ Enhancing prescribing and use of lipid-regulating medicines.
- ◆ Reducing clients' CHD risk scores.

Currently, there are very few lipid management services offered in the UK and there is a need to establish how, and if, the US and Canadian evidence is applicable to the UK. Community pharmacies offer the potential to improve the use of the resources invested in and the outcomes of lipid management, but good evidence from UK-based studies would help to convince commissioners.

Identifying pharmacy users with risk factors for CHD

Community pharmacists can use patient medication records (PMRs) to identify clients at high risk of CHD, by for example, searching for a range of drugs that would indicate heart disease. Studies in the US,¹⁹ Canada,²³ and Australia²⁴ suggest that the use of such data to target patients with risk factors for CHD appears to be effective in identifying those at risk to provide follow-up on lipid management and advice.

However, the PHLink/RPSGB work concluded it was unclear whether or not pharmacists can play an effective part in screening activities, such as blood pressure measurement, without further research and training. Currently available evidence suggests that community pharmacy-based screening services are unlikely to be successful unless they are part of a co-ordinated, funded activity. This is important as the development of screening services should always be discussed with other local healthcare professionals who are also involved in patient care. These discussions should take place at an early stage to provide the best opportunity for the pharmacy service to become integrated with the other locally services provided (see 'How to approach the primary care organisation with a service development proposal' page 42).

Secondary prevention with aspirin

Community pharmacists could potentially perform an important role in ensuring the appropriate use of prophylactic treatment and intervening to minimise potential harm from self-initiated aspirin treatment in people with contra-indications to its use. 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.²⁵ This indicates that community pharmacy audits can identify self-initiated aspirin treatment and encourage referral for medical advice. The grey literature reviewed in the PHLink/RPSGB work¹³ found that the pharmacist is perceived by pharmacy users to be an appropriate potential source of advice on aspirin and heart disease, but pharmacists are not believed by those patients taking aspirin to be currently providing the advice they need. The review concluded that patients taking aspirin have unmet information needs, which community pharmacists could provide.

Additional studies in this area include:

- ◆ Screening of patients with CHD by the community pharmacist does result in an increased uptake of aspirin therapy.²⁶
- ◆ A questionnaire of patients with prescriptions for or purchasing glycerol trinitrate (GTN) in community pharmacy found that patients knowledge of GTN management was poor and not all appropriate patients were taking aspirin.²⁷

Anticoagulation

Another potential role for community pharmacists is in monitoring of anticoagulant therapy and minimising negative health outcomes in this 'high risk' patient group. However, there is currently no published UK-based research to provide evidence for this. Evidence from three community pharmacies in the US suggests that this service shows promise, but more evidence is needed.²⁸

Obesity and weight reduction

The incidence of obesity is increasing dramatically and there is potential for community pharmacists to advise clients on weight management and offer weight reduction programmes. Evidence from the published literature¹² suggests that further research is needed before conclusions can be reached on the effectiveness of such programmes.

Additional studies on the effect of community pharmacist intervention with CHD patients include:

- ◆ A RCT showed that a structured patient-centred intervention by community pharmacists had a positive effect on blood pressure control, self-reported adherence and patient satisfaction with pharmaceutical services.²⁹
- ◆ A study showed that community pharmacists can work with GPs to deliver a specified model of care for the secondary prevention of CHD.³⁰
- ◆ A study showed that potential exists for the contribution that community pharmacists make at the time of supply of GTN to improve the management of patients with angina.³¹

Skin Cancer Prevention

The community pharmacy is an ideal place for the public to obtain information on skin cancer. Pharmacy-based information, such as touchscreen technology, appears to be effective in raising awareness of sun risks, and trained pharmacists are more likely to be proactive in counselling clients. However, the effect of this advice on the behaviour of clients is currently unknown.¹²

Drug Misuse

All pharmacists play a major part in limiting the illicit availability of drugs by controlling the supply of medicines, monitoring prescriptions to identify excessive prescribing and detecting and reporting forged prescriptions. In addition, many pharmacists are involved in activities aimed at reducing the risk of harm from the illicit use of drugs (e.g. dispensing methadone and supervising consumption on the pharmacy premises). Evidence from both the peer-reviewed¹² and non peer-reviewed¹³ literature demonstrates that community pharmacy-based supervised methadone administration services are acceptable to clients and achieve high attendance rates. Pharmacists can also help to reduce the demand for drugs by providing information and advice to the public on drug misuse and there is some scope to develop this role.

Pharmacists can advise drug users on the risks of contracting blood-borne viral infections, particularly HIV, hepatitis B and hepatitis C, usually from sharing needles and/or syringes, and the grey literature suggests that they are generally positive about doing so.¹³ Moreover, a national UK survey of community pharmacists found that between 1988 and 1995 the percentage of pharmacists providing needle exchange services increased from 3.0 to 18.9 and that sales of injecting equipment were being made by 34.5% of pharmacists compared with 28.0% in 1988.³² The PHLink/RPSGB work concluded that pharmacy-based needle exchange schemes have been shown to be cost effective and acceptable to users.

Additional studies in this area include:

- ◆ A report of the work in Glasgow that enabled many more GPs to treat drug injectors effectively and showed that community pharmacists have a key role in supervising the self-administration of methadone by patients in pharmacies.³³
- ◆ An evaluation of the Greater Glasgow Pharmacy Needle Exchange Scheme which concluded that pharmacy needle exchange schemes make an important contribution to reducing harm amongst current drug injectors in the city.³⁴
- ◆ A study considered the pharmacists' views and patient compliance with the introduction of a supervised methadone scheme, and found that, from the pharmacists' viewpoint, the scheme was introduced in a relatively trouble-free manner and that patient compliance with supervised methadone was high.³⁵

Sexual Health (including emergency hormonal contraception)

Pharmacists have a potential role in promoting safer sex and contraception, including emergency hormonal contraception (EHC). There are now a number of UK schemes allowing the supply of EHC to under 16-year-olds using PGDs. The schemes were developed through local collaborations with family planning and sexual health services and were funded from Government monies aimed at reducing teenage pregnancies.

Published studies from the UK³⁶ demonstrate that pharmacists can effectively and appropriately supply EHC within the time-scale required for efficacy. In these and unpublished studies, users were satisfied with the service pharmacists provided, although there were some concerns in about one-fifth of female users about privacy and confidentiality.

Pharmacists were positive about their experience of providing EHC. Window displays in pharmacies were shown to be effective in raising client awareness and encouraged enquiries about supply, the presentation of prescriptions for emergency contraception and pregnancy tests.³⁷

Immunisation

Most pharmacists interact with the general public in relation to immunisation, either in the supply of vaccines for administration at local GP surgeries or in the giving of advice related to foreign travel. Community pharmacists should take every opportunity to emphasise the importance of immunisation and the risks associated with non-vaccination compared with those of the possible side effects of the vaccines used. The PHLink/RPSGB work indicated that pharmacy PMRs are effective in identifying ‘at risk’ patients to prompt pharmacists to ensure that such patients are encouraged to have immunisation. This activity could increase the percentage of a target group of people immunised.

Other potential roles for community pharmacists in immunisation include:

- ◆ Participating in the strategic planning of the managed introduction of immunisation programmes (e.g. influenza in the elderly).
- ◆ Advising on systems needed to optimise the use of vaccines in the event of emergencies (e.g. measures for stockpiling product, producing PGDs to allow the legal supply and administration by non-medically qualified personnel, distribution and administration).
- ◆ Providing information on the handling and storage of vaccines. These products are particularly susceptible to changes in temperature and maintenance of the cold chain is important.
- ◆ Maintaining appropriate records. It is advisable to enter batch numbers on the PMR. Unlike other medicines that are subject to recalls, the administration of a vaccine implies protection for a considerable period of time and the requirement to recall the patient to minimise consequences of a faulty product is perhaps of greater importance in this case.

Pharmacists could be involved in immunisation itself. A US study of 19 supermarket pharmacies indicates that influenza and pneumococcal immunisation services can be safely provided through community pharmacies.³⁸ User satisfaction with pharmacy-based immunisation services is high³⁹ and more than 1000 US pharmacists received training in vaccine administration in 1997. A Dutch study showed that pharmacy PMRs can be used for case finding of ‘at risk’ clients to be invited for immunisation and can increase the percentage of the target group immunized.⁴⁰

Head Lice Management

Community pharmacists provide and give advice on head lice treatments. Outside the head lice management schemes, however, service provision seems to be unstructured.¹² Where schemes are in place, they appear to be well received, although the cost of over-the-counter (OTC) head lice treatments can be a barrier to use.¹³ Community pharmacists should explore provision of treatment on the NHS where this applies, and indeed, numerous minor ailment schemes now include head lice treatments in order to overcome the payment barrier. It is also important to ensure the consistency of messages about head lice infestation between pharmacists, GPs, practice staff and schools.

Oral Health

Community pharmacists have several potential roles in oral health:

- ◆ They may be asked questions about oral and dental problems (e.g. toothache, mouth ulcers, candida, gingivitis). The outcome of such an encounter may be sale of a treatment (e.g. a simple analgesic) or referral to another professional (e.g. dentist or doctor).
- ◆ They can give information on nutritional issues in relation to oral health (e.g. sugar in foods, medicines and drinks) and oral hygiene (e.g. brushing, use of toothpastes and mouthwashes).
- ◆ They can give information about the side effects of medicines in relation to the mouth. Some medicines can alter taste or result in a dry or sore mouth.

The PHLink/RPSGB work indicates that pharmacists need to take a more proactive approach to maximise opportunities in oral health. Moreover, pharmacist training on oral health is variable and needs to be improved.

Mental Health

The main point of interaction between community pharmacists and those with mental health problems has traditionally been at the point of dispensing or in sales of medicines. Drug therapy is, of course, a major part of mental health treatment. Pharmacists also help to treat those suffering from drug addiction, a condition which is often associated with mental health problems. However, pharmacists are also ideally placed to:

- ◆ recognise early symptoms of mental health problems;
- ◆ spot signs of relapse in patients;
- ◆ help with concordance;
- ◆ encourage good mental health practice in the local population;
- ◆ help to change attitudes and perceptions towards mental health patients;
- ◆ provide information on stress management, including self-help groups.

This area is reviewed in the non peer-reviewed report¹³ which concludes that there appears to be potential for pharmacy staff to offer support and advice in relation to mental health issues.

Additional studies in this area include:

- ◆ The development of a medication management and information service from community pharmacists to people with mental health problems in conjunction with community mental health teams (CMHTs). This study showed that an increased exchange of information about medication was highly valued by the clients.⁴¹
- ◆ A study showed that community pharmacists can be successfully integrated into CMHTs. The community pharmacists provided pharmaceutical care during joint domiciliary visits with key workers. The psychiatrists felt that the scheme did make improvements to patient compliance with medication.⁴²
- ◆ A study which showed that community pharmacists can make a valuable pharmaceutical contribution to mental healthcare through clinically significant interventions.⁴³

Accidental Injury Prevention

Accidents are a significant cause of morbidity and mortality, especially in the young and frail, elderly populations. In 1998, there were more than 12,000 accidental deaths in the UK, including 3500 caused by road traffic accidents.⁴⁴

Each year more than 3000 people over 65 years die as a result of falls. The risk factors for falls include disability, illness, visual impairment and polypharmacy, with patients taking sedatives and anti-hypertensives being at particular risk. Older people are particularly vulnerable as they are more likely to be affected by osteoporosis, which puts them at risk of serious injury from broken hips and wrists. Up to 14,000 people die annually in the UK as a result of osteoporotic hip fracture.

Community pharmacies are beginning to offer osteoporosis screening. One report of a pharmacy-based screening service involving pharmacist and nurse input was found to be feasible, and identified women at risk of osteoporosis.⁴⁵ Women using the scheme valued the accessibility offered by community pharmacy.

Pharmacists are ideally placed to raise awareness of the risks of medicine-related accidents, which can occur directly from overdose or poisoning or indirectly from the medicine's effects on the central nervous system and may be associated with tasks such as driving. Measures to reduce the likelihood of accidents are routinely implemented by pharmacists in the course of their work. They control the supply of medicines and can educate the public and patients on safe storage and use of medicines and make arrangements for the safe disposal of medicines. Data collected on unwanted medicines returned to community pharmacies showed that the main reasons for returning medicines were a change in therapy, the death of the patient or adverse reactions.⁴⁶

Community pharmacists can discuss changes in prescribing frequency with local prescribers to help prevent the accumulation of excess medicines. Instruction and warning labels, child-resistant containers, patient leaflets and targeted education campaigns all play their part. Pharmacists should also be aware of the potential risks of accidents when reviewing medication that can impair mental and /or neuromuscular function.

Additional studies in this area include:

- ◆ A study which had assessed the impact of a community pharmacy osteoporosis risk assessment service in collaboration with GP practices showed that patient knowledge about bone health increased, appropriate daily calcium intake increased and that appropriate high risk patients were referred to the GP.⁴⁷

Folic Acid and Pregnancy

Community pharmacists and their staff are ideally placed to offer advice to women about the use of folic acid before and during pregnancy. Evidence suggests that pharmacy staff are positive about this role, but there are no published studies showing the effects of intervention on women's behaviour.¹² Research is needed.

Asthma

Community pharmacists are ideally placed to improve management of asthma. Pharmacies and GP surgeries already do work with asthma patients. The PHLink/RPSGB work investigated the role of pharmacists in only one area – that of improving the management of asthma in schoolchildren by school teachers, where they found some benefit. However, the conclusion was that further research in this particular area is needed.

Additional studies in this area include:

- ◆ A study determined if the Jones Morbidity Index (JMI) can be used in community pharmacy when asthmatic patients collect their prescriptions to identify those who have poor asthma control. Structured questionnaires were completed by asthmatics who presented prescriptions at community pharmacies in order to assess their morbidity and knowledge of asthma and their attitudes towards, and usage of, medication. The study found that the JMI is a valuable tool to identify poor asthma control. More than half the asthmatics presenting their prescriptions at pharmacies had symptoms and signs indicating poor asthma control.⁴⁸
- ◆ A study assessed the outcomes of a community pharmacy-led asthma clinic working closely with a nurse-led asthma clinic in a GP practice. The study demonstrated the benefits of nurses and community pharmacists working together to improve patient care.⁴⁹
- ◆ A study in New Zealand determined the impact of a community pharmacy-based pharmaceutical care service to asthma patients. The service involved the creation of a patient record, identification of medication-related problems and development of strategies to resolve these problems and monitor outcomes. The study showed that this service led to improvements in asthma management and quality of life for the majority of patients.⁵⁰

Diabetes

Diabetes is a significant cause of morbidity (e.g. blindness, cardiovascular disease) and mortality, and community pharmacists have a unique opportunity to demonstrate their skills and knowledge in dealing with this client group. Pharmacists can potentially:

- ◆ Promote healthy eating and physical activity to help reduce the risk of diabetes.
- ◆ Educate the public and pharmacy staff on the signs and symptoms of diabetes.
- ◆ Contribute to the early identification of diabetes.
- ◆ Ensure that diabetic patients are taking their medication regularly and attending follow-up visits at their GP practice or clinic.
- ◆ Provide medicines management services to patients with diabetes.
- ◆ Participate in multi disciplinary teams to help in the management of diabetes.

The literature makes frequent mention that community pharmacists are undertaking such activities, and the PHLink/RPSGB review concluded that pharmacy-based education and monitoring in diabetes shows promise but that further evidence is needed.¹²

Additional studies in this area include:

- ◆ A study evaluated the clinical benefits and acceptability to patients and other health professionals of HbA1c testing in 260 people with diabetes over a six month period. Before the study, only 57% of diabetic patients had received an annual HbA1c test. This rose to 100% during the study when all 260 people attended for their first HbA1c test. Of these 260 patients, 44% were deemed to have inadequate control. The service was well accepted by both patients and healthcare providers, and when regular testing was combined with education, it also helped poorly-controlled patients to better manage their diabetes.⁵¹
- ◆ Another study involved community pharmacists identifying 62 regular customers with Type 2 diabetes who met defined inclusion criteria. The community pharmacists undertook an initial assessment, medical case note review, review of PMR, and a 30-minute structured interview. From these interventions, a pharmaceutical care plan was prepared, which was discussed with the GP and actions agreed. A total of 178 pharmaceutical care issues were identified across the 62 patients, including drug therapy problems, inadequate monitoring and poor patient knowledge.⁵²
- ◆ A survey of 93 patients who visited a UK pharmacy for advice about blood glucose meters revealed several problems. For example, half had difficulty sampling blood, a third did not keep the measuring chamber of their meter clean, and one patient had bought three meters but could not use any of them.⁵³

Nutrition and Physical Activity

Community pharmacists have a role in advising the public about nutrition, physical activity and general healthy living. Many of the conditions they deal with in the pharmacy benefit from dietary change, increased physical activity and other lifestyle changes. In addition, community pharmacists see healthy, as well as sick people and by providing advice to healthy clients, they can potentially contribute to the prevention of disease in later life. The PHLink/RPSGB work identified no individual studies on these topics, although they were covered in some multi-topic community pharmacy programmes and in some studies on heart disease prevention.¹²

Multi-Topic Health Promotion Campaigns

Community pharmacy health promotion activities were first reported in the UK in the 1980s. A number of other initiatives conducted in the 1990s, for example the programmes developed in Barnet, Somerset and Glasgow, provided valuable data on the feasibility and provision of health promotion and public health activities in community pharmacies.⁵⁴⁻⁵⁷

A 2001 European Commission project entitled *Health Promotion in Primary Care: General Practice and Community Pharmacy* produced a database of European health promotion initiatives.⁵⁸ Client feedback from these studies has been positive with pharmacist training increasing client satisfaction and the level of pharmacy involvement.

Conclusion

Community pharmacists can make an important contribution to health development. The PHLink/RPSGB work shows that evidence from the published literature is sufficiently strong in the areas of smoking cessation and lipid management, emergency contraception and immunisation, and community pharmacists should use this evidence when approaching commissioners (see 'How to approach the primary care organisation with a service development proposal' page 42). Where evidence is lacking, this should be used as a stimulus for further research.

Can Community Pharmacists Make an Effective Contribution to Public Health?

Community pharmacists already make an important contribution to public health by providing appropriate information, advice and support to a wide variety of people on subjects ranging from contraceptive advice through medicines to alternative treatments and lifestyle issues. They also play a vital role in sign-posting patients to other appropriate health professionals. However, pharmacists can make an even greater contribution to the public's health than is presently the case. To do this, they need to identify their own public health role. Various activities have been cited as possible public health (*Table 2*) and health promotion (*Table 3*) roles.⁵⁹

Table 2. Possible pharmaceutical public health roles

- ☐ Provide health advice on self-care.
- ☐ Provide health advice to young mothers.
- ☐ Provide support to develop effective parenting skills.
- ☐ Participate in health promotion campaigns.
- ☐ Participate in healthy living centres.
- ☐ Promote drug misuse awareness.
- ☐ Participate in needle and syringe exchange schemes.
- ☐ Promote healthy schools.
- ☐ Improve AIDS awareness.
- ☐ Provide sexual health support.
- ☐ Provide unplanned teenage pregnancy support.
- ☐ Support patients with chronic illness.
- ☐ Provide advice on how medicines work.
- ☐ Advise on complementary medicine.
- ☐ Maintain patient medication records.
- ☐ Provide monitored dosage systems.
- ☐ Promote patient medication adherence.
- ☐ Provide out-of-hours services.
- ☐ Provide collection and delivery services.
- ☐ Undertake domiciliary visits.
- ☐ Deal with pharmaceutical hazard alerts.
- ☐ Facilitate disposal of waste medicines.

(Reproduced from Walker R (2000). *Pharmaceutical public health: the end of pharmaceutical care?* Pharmaceutical Journal **264**:340-2.

Table 3: Examples of health promotion activities provided in community pharmacies

- *Healthy lifestyle* (advice on healthy eating, nutrition, exercise, alcohol, family planning, passive smoking, smoking cessation).
- *Asthma/respiratory diseases* (chronic bronchitis, allergies, inhaler devices, medicines and asthma, children, adults).
- *Healthy heart* (healthy eating, exercise, high blood pressure, angina, use of aspirin).
- *Sexual health* (HIV/AIDS safer sex, infertility, emergency contraception emotional support, sexually transmitted diseases, contraception).
- *Safety/prevention* (Safe use of medicines, dump campaigns, foreign travel, first aid, accident prevention, sports injuries).
- *Substance abuse* (solvents, alcohol, drugs [illicit or prescription drugs], needle exchange).
- *Elderly* (advice for carers, compliance devices, mobility aids, incontinence, stoma care, influenza, footcare).
- *Parents and babies* (breast-feeding, milk substitutes, folic acid, immunisation, nappy rash, teething).
- *Children* (head lice, parasites, meningitis, immunisation, vitamins, sugar and salt in food).
- *Women's health* (breast cancer, cervical cancer, migraine, stress incontinence, thrush, cystitis, menopause, osteoporosis).
- *Men's health* (prostate problems, heart attacks, lung cancer, stress, indigestion/heartburn).
- *Oral health* (cancer of the mouth, mouth ulcers, babies' teeth, dentures, dental care, cold sores, sugar-free medicines).
- *Skin care* (cancer, eczema, psoriasis, acne, sunscreens, scabies).

It has also been suggested that pharmacists can provide public health input at two levels.⁶⁰

- ◆ To patients and individual members of the public, provided at the point of healthcare delivery.
- ◆ To NHS and social care organisations, whose role is strategic with responsibilities that relate to the whole population they serve.

The Faculty of Public Health (*Appendix 1*) identifies 10 core elements of public health practice.⁶¹ It recognises that many different professions can contribute to delivering a public health agenda, including pharmacists, doctors, nurses, health economists and statisticians. The 10 core elements need further refinement to ensure the unique pharmaceutical contribution to public health is maximised,⁶⁰ but they provide a useful starting point for illustrating various roles pharmacists could play at a population, rather than an individual patient, level. They are:

- ◆ Surveying and assessing the population's health and well-being.
- ◆ Promoting and protecting the population's health and well-being.
- ◆ Developing quality and risk management within an evaluative culture.
- ◆ Working collaboratively for health.
- ◆ Developing health programmes and services and reducing inequalities.
- ◆ Developing and implementing policy and strategy.
- ◆ Working with and for communities.
- ◆ Strategic leadership.
- ◆ Research and development.
- ◆ Ethically managing self, people and resources.

The following explores what these 10 key roles could mean for community pharmacy and additionally how the community pharmacy makes an essential contribution to public health by being situated in the heart of the neighbourhood.

Surveying and Assessing the Population's Health and Well-Being

Health needs assessment is an important component of public health. It performs several functions, including:

- ◆ identification of unmet needs;
- ◆ ongoing assessment of the health of a specific population. A population can be defined geographically or by patient group (e.g. those with a specific disease or an ethnic sub-group);
- ◆ informing the future organisation and delivery of services.

A health needs assessment involves gathering data to define the number and identity of, say, those suffering from a particular condition within a geographical community.

Promoting and Protecting the Population's Health and Well-Being

It is well known that lifestyle changes, such as smoking cessation, nutrition and physical activity, can contribute to national targets to reduce the burden of disease from obesity, CHD and cancer. Pharmacists are well placed to deliver health promotion messages on smoking, diet, exercise and also in other areas, for example, raising public awareness of the early symptoms of oral cancer and coronary risk assessment.¹²

Health protection of both individuals and the wider population is also important. Pharmacists have long been involved in needle and syringe exchange schemes to reduce the spread of HIV and other blood borne diseases in drug misusers and the wider community.

Developing Quality and Risk Management within an Evaluative Culture

The key here is clinical governance. Clinical governance is about continuous quality improvement and incorporates clinical effectiveness, quality assurance, risk management, audit and development at the organisational and staff level. For pharmacists this involves looking critically at individual and corporate performance, identifying areas of sub-optimal patient care and addressing deficits, of both structure and process.

Working Collaboratively for Health

Pharmacy is already involved with other health professionals in delivering services such as smoking cessation and reducing teenage pregnancies and with social services through work in discharge planning and continuity of care. However, there are still opportunities for new ways of working jointly with local authorities and other agencies on issues related to health and the environment, such as the police and education services around substance misuse.

Developing Health Programmes and Services and Reducing Inequalities

Reducing health inequalities is high on the government agenda and community pharmacists have a role to play in the targeting of individuals whose health experience is below average, or who may not access current health services for a variety of reasons. Pharmacists could help to ensure that:

- ◆ Homeless people receive adequate pharmaceutical care and are provided with the information they need to empower them to make the health choices available to them.
- ◆ Rural communities without a neighbourhood community pharmacy or specialist hospital can access pharmaceutical services.

Developing and Implementing Policy and Strategy

Public health practice is about collaborative, organised effort. Community pharmacists must therefore be prepared to work within an integrated framework of health improvement strategies. Pharmacists have been successful in looking after their own practice populations, but must now look outside their traditional customer base and involve themselves in the health of the wider population.

Working with and for Communities

Acting as an advocate for the public and engaging with them is vital for the improvement of public health. Involving the public in service design can provide insight into what it is like to be a service user or to suffer from a condition such as asthma or diabetes. Pharmacists are well placed to ensure that their services are patient focused and to communicate the needs of the population to others involved in health improvement.

Strategic Leadership

Community pharmacists should alert professional colleagues to the contribution pharmacy can make to public health at both a strategic and operational level. Your case should include areas outside of those traditionally thought of as 'pharmacy', including:

- ◆ uptake of immunisations;
- ◆ reduction in inappropriate antibiotic use;
- ◆ welfare information;
- ◆ promotion of the local community.

Research and Development

New services must be underpinned with research evidence of efficacy, effectiveness and efficiency. Data which have been systematically collected and where possible generalised to the wider population, represents the most influential way of changing practice. All pharmacists should implement research evidence into their practice.

Ethically Managing Self, People and Resources

Commitment to continuing professional development (CPD) and lifelong learning is a requirement of the RPSGB's Code of Ethics, but it largely takes an individual patient and pharmacist approach, not a population perspective. A population perspective would add the dimension of equitable use of health resources, which most obviously would apply to the availability of particular drugs or treatments to a population, but could equally apply to the differential provision of pharmaceutical services across a population.

Community Pharmacy and Neighbourhood Renewal

Community pharmacy can make a real difference to local communities and this contribution should not be underestimated – particularly in terms of its impact on public health.

Community pharmacists have always played a role in promoting, maintaining and improving the health of the communities they serve. This is primarily because they are situated in the heart of communities. Research shows that in small communities, three core businesses make the difference between a viable business community and one that fails.⁶² The three businesses are a health centre, a pharmacy and a source of cash (most often provided by a post office). Where these three are present, business communities are stable and grow. If any is absent, the business community declines, with an associated reduction in health and well-being for local people – and reduced access to local fresh foods and services.

The relocation of a GP surgery, and the subsequent closure of the local pharmacy may be the death knell for local shopping access. The New Economics Foundation – an independent think tank – published a report *Ghost Town Britain: a lethal prescription*⁶³ calling for the government to recognise the role of pharmacies in supporting local services. This report followed an earlier publication: *Ghost Town Britain*⁶⁴ which highlighted the speed with which local services were disappearing – especially in villages and market towns.

The New Economics Foundation's argument was that when the number of local retail outlets falls below a critical mass, the quantity of money circulating in the local economy falls as people find it is impossible to do a full shop locally and so go elsewhere. This is a finely tuned mechanism – as soon as people have to go elsewhere for one service, they tend to go elsewhere for them all, leading to local food and finance deserts. The social and economic impact of this is huge, with those least able to access alternatives – notably older people, single parents and those without private transport – being worst hit. High street pharmacies are a crucial lifeline in many communities and an essential service – especially for those who do not have access to a car. If pharmacies close when, for example GPs move on, local neighbourhoods are also in danger of becoming health facility deserts. This will speed their decline.

Areas without a vibrant local economy tend to be less attractive to live in. There is no 'social glue' to hold the community together. Local people lose economic fluency. Entrepreneurs have no local economy to contribute to. The unemployed lose local routes back to work. The outcome is high crime rates and a vicious circle of decline.

The loss of local GP premises and pharmacies could have a bigger impact on the high street than the NHS realises. The knock-on effect on other local retail outlets could be significant. The Countryside Agency estimates that each post office closure results in an estimated 15% drop in trade for local shops in rural areas – and local traders report similar reductions in trade when a bank closes. If the impact of the closure of a GP and/or pharmacy premises is of the same magnitude, the impact on local shops could be devastating. As well as providing an inducement to shop locally – thereby helping to maintain a thriving and diversified high street economy where local people's income is spent in local shops– pharmacies also provide employment for local people.

Socially disadvantaged areas are particularly vulnerable to such decline – and this also has public health consequences. Levels of illness in a community are determined by wealth and levels of wealth are in turn influenced by the economic viability of the local community.

Ironically, people living in socially disadvantaged areas are likely to use primary care services more frequently than those in higher socio-economic groups. The Office of National Statistics shows that low income households make twice the number of visits to their GP as a high income professional – and it is also likely that they visit the pharmacy at least twice as often as well. This means that, for both health access and economic reasons, health services close to home are particularly important in socially disadvantaged areas.

Putting Public Health into Practice

Why should community pharmacists get more involved with public health?

Community pharmacists have always been involved in public health. Before the inception of the National Health Service in 1948, large numbers of the population consulted pharmacies to get advice and treatment for symptoms of illness, often because they could not afford to visit a doctor. Providing information and treatment to maintain and improve health has been second nature to community pharmacists for as long as they have existed. Engaging daily with a wide variety of people – both the healthy and the sick – from the communities they serve gives pharmacists a wealth of understanding of public health.

Almost every professional activity in which pharmacists are involved has implications for public health. Services such as EHC, needle exchange, supply and supervision of methadone, supply of vaccines and advice on smoking cessation and sexually transmitted diseases are ones which pharmacists will readily associate with public health. However, activities linked to the use of medicines should not be forgotten. Indeed, pharmacists are the best qualified health professionals to carry out such activities. One reason for the success of smoking cessation services in community pharmacies is that the pharmacist is able to provide advice around an effective product. Thinking more broadly, however, pharmacists who contribute to the detection and prevention of adverse drug reactions (ADRs), help patients make the best use of their medicines through medicines management services and advise on the managed introduction of new medicines into practice, are also contributing to important public health issues.

Often without realising it, community pharmacists already contribute a great deal to the public health agenda. Their position on the high street in a commercial environment in the heart of communities across the length and breadth of the UK is an enormous asset to public health – one that is increasingly recognised by the policy makers. Indeed there are now a number of policy documents across the UK that recognise the key public health role that community pharmacy has. For example:

- ◆ In England *A Vision for Pharmacy in the New NHS* ⁶⁵ states that: ‘Community pharmacies are not just another shop on the high street or in the retail centre. They should be clearly seen as places where patients are able to access readily an increasing range of healthcare services. They are a valuable resource for improving health and reducing health inequalities, especially for vulnerable and deprived populations.’
The Vision also states that there is considerable scope to build on the current achievements in public health, and that pharmacists are probably the biggest untapped resource for health improvement. Services proposed within the new pharmacy contract will reflect the public health contribution of community pharmacists, and a pharmacy public health strategy will be published in 2005.

- ◆ In Scotland, a major report of pharmaceutical public health was published in 2002 by The Public Health Institute of Scotland.⁶⁶ This report describes current pharmaceutical public health practice and outlined recommendations to develop pharmacists' involvement in various aspects of public health. The report is also an excellent source of information for the existing public health services currently provided by community pharmacies and the evidence base for them.
- ◆ In Wales, the *Action Plan for Remedies for Success: A Strategy for Pharmacy in Wales*⁶⁷ sets out a number of action points in relation to pharmaceutical public health.
- ◆ In Northern Ireland, *Making it Better: A Strategy for Pharmacy in the Community*⁶⁸ has a particular focus on the role of the community pharmacist in improving public health and reducing health inequalities.

If pharmacists want to make a serious contribution to the public health agenda, they must identify their own public health role. Repackaging existing activities and services is one way of doing this, but such services should be monitored and audited on an ongoing basis to provide the evidence-base that demonstrates that pharmacists can provide real added value. In short, providing undocumented advice and leaflets on health matters is not enough. The pharmacist's input to public health needs to be structured, documented, evidence-based and capable of demonstrating real added value. It must also be multi professional and focus on the needs of the population.

Identifying where Community Pharmacy can Contribute to Public Health

In order to identify where community pharmacy can become involved in public health, it is important to have an understanding of Government targets and to be aware of what the priorities are for the local primary care organisation (PCO).

Knowledge of local NHS priorities is key since the local PCO is more likely to fund a community pharmacy service development if it helps to meet PCO targets.

Government Targets in England

In primary care the NHS is currently concentrating on three sets of targets contained in:

- ◆ The quality indicators in the new general medical service (GMS) contract.
- ◆ The primary care trust (PCT) performance indicators.
- ◆ The Department of Health (DH) Priorities and Planning Framework 2003 – 2006.

Appendix 2 lists the key targets in each that relate to public health, and describes potential community pharmacy services that could be developed to help the local PCT meet its targets.

The PSNC resource pack *The NHS: A Guide for Community Pharmacists* is a very useful guide that describes the workings of the NHS in greater detail. This is available at www.psn.org.uk (then 'Resources', and 'Publications').

The Quality indicators in the new GMS contract

The new GMS contract heralds a new era in primary care. Like the proposed pharmacy contract, its focus is on quality of care, rather than merely volume of work. The contract has significant new funding attached to it – with the bulk of the one-third increase in primary care funding planned over the next three years flowing into the system through GMS. The most significant part of the GMS contract for community pharmacy is the quality and outcomes framework, which awards points (and pounds) for achieving clinical, organisational and patient experience quality indicators such as:

- ◆ maintenance of a disease register;
- ◆ improved levels of measurement and intervention in patients with specified medical conditions;
- ◆ improved control of medical conditions.

Appendix 2 lists the key quality indicators that relate to public health, and describes potential community pharmacy services that could be developed to help the local GP practice meet its targets.

The GMS contract is available at www.bma.org.uk

The National Pharmaceutical Association's (NPA's) NHS Service Development Department has produced two resources to support community pharmacists working collaboratively with GP practices:

- ◆ *The New GMS Contract: A Resource to Support Community Pharmacists Working in Partnership with GMS Practices.* This pack aims to provide NPA members with the relevant background and information to support understanding of the new GMS contract, and the opportunities it creates for collaborative working with GP practices as part of the primary healthcare team. This resource outlines information that is generic and thus broadly applicable to all four countries in the UK. Where possible, any significant differences between the four countries are highlighted.
- ◆ *A Quick Reference Guide to the Quality Indicators in the New GMS Contract.* This guide describes the key GMS quality indicators, what services community pharmacy can offer to support GP practices, and gives examples of the published evidence base, and practical resources available to help with service development.

These resources are available from the NHS Service Development Department by emailing nhs.dev@npa.co.uk, or by calling 01727 858687 ext. 3217.

The PCT Performance Indicators

In December 2003, PCTs received the performance ratings which will assess PCT performance during 2003/2004 against specific targets set by the DH. The production of these performance ratings is the responsibility of the Healthcare Commission. The ratings are published every year to enable evaluation of the ongoing performance of PCTs.

The performance ratings are calculated by assessing performance against 'key targets' and 'balanced scorecard indicators'. The key targets are the most important set of targets since they determine the overall performance rating.

These targets broadly reflect the priorities outlined in the *Priorities and Planning Framework 2002 – 2006* to ensure that PCTs are focused on delivering these priorities.

PCTs are very focused on how they can improve their performance against the ratings, by meeting the performance indicators. Appendix 2 lists the key performance indicators that relate to public health, and describes potential community pharmacy services that could be developed to help local PCT to meet their targets.

Details of the performance ratings are available at www.ratings.chi.nhs.uk and www.chi.nhs.uk/eng/ratings/2004/index.shtml

The NPA's NHS Service Development Department has produced *A Quick Reference Guide to the PCT Performance Indicators 2003 – 2004*. This guide describes the key performance indicators, what services community pharmacy can offer to support the various targets, examples of the published evidence base, and practical sources of help. This guide is available from the NHS Service Development Department by e-mailing nhs.dev@npa.co.uk, or by calling 01727 858687 ext. 3217.

The DH Priorities and Planning Framework 2003 – 2006

The DH *Priorities and Planning Framework 2003– 2006* was launched in September 2002. This document identifies the national priorities and targets that NHS and social care organisations need to meet over the next three years. NHS priority setting has always been done on an annual basis, so this framework represents a fundamental departure for the NHS in England. Pharmacists having discussions with PCTs on potential services can now legitimately talk about longer term (i.e. three year) funding.

In England the key planning document at local level is the three-year Local Development Plan (LDP). These replace the annual targets listed in the old Health Improvement Programmes and describe how local NHS and social care organisations will meet the national priorities and targets set out in the *Priorities and Planning Framework*.

The DH *Priorities and Planning Framework 2003– 2006* is available at www.dh.gov.uk/PolicyAndGuidance/OrganisationPolicy/FinanceAndPlanning/PlanningFramework/fs/en

The NPA's NHS Service Development Department has also produced a resource, titled *A Quick Reference Guide to the DoH Priorities and Planning Framework 2003-2006* which describes how community pharmacists can contribute to the targets, and gives examples of the evidence base, sources of practical help and potential sources of funding. This guide is available from the NHS Service Development Department by emailing nhs.dev@npa.co.uk or by calling 01727 858687 ext. 3217.

Health Inequalities

The Government gave a commitment in the *NHS Plan* that, for the first time ever, local targets for reducing health inequalities would be reinforced by the creation of national health inequalities targets. The first major Government review on tackling health inequalities was published in 2002⁴. This review set out the long-term strategy to reduce health inequalities.

Following the publication of this review the Government included health inequalities targets in the *Priorities and Planning Framework 2003– 2006* which relate to improving life expectancy and infant mortality. The health inequalities targets in this document are:⁵

Life expectancy

- ◆ Ensure that prevention and treatment services for cancer and CHD reach those in greatest need or with poorest health outcomes, including disadvantaged groups and ethnic groups with high prevalence. For CHD in particular reduce hypertension and increase prescription of statins.
- ◆ Increase smoking cessation.
- ◆ Reduce excess winter deaths, including by increasing influenza immunisation.

Infant mortality

- ◆ Reduce smoking in pregnancy.
- ◆ Improve nutrition in women of childbearing age.
- ◆ Reduce teenage pregnancy.
- ◆ Increase breast-feeding initiation and duration rates.
- ◆ Provide effective ante natal care (including screening and immunisation) and promoting early ante natal booking.
- ◆ Improve the quality of midwifery, obstetric and neonatal services.
- ◆ Introduce effective education about ways to promote health, e.g. immunisation.
- ◆ Provide high quality family support (e.g. through health visitors) including particular efforts to address risk factors for Sudden Infant Death.

In 2003, the Government published a three-year plan '*Tackling Health Inequalities: A Programme for Action*'⁶⁹ to carry forward the recommendations in the 2002 *Cross-Cutting Review*. It provides the basis for meeting the 2010 national health inequalities target on life expectancy and infant mortality. The *Programme* is organised around themes including:

- ◆ To support families, mothers and children: to ensure the best possible start in life and break the inter-generational cycle of poor health.
- ◆ To engage communities and individuals: to prevent illness and provide effective treatment and care, particularly targeting areas of health inequality.
- ◆ To address the underlying determinants of health: to deal with the long-term underlying causes of health inequalities.

Key interventions to contribute to closing the life expectancy gap include:

- ◆ Reducing smoking in manual social groups.
- ◆ Preventing and managing other risks for CHD and cancer such as poor diet and obesity, physical inactivity and hypertension through effective primary care and public health interventions – especially targeting those over-50 years of age.
- ◆ Reducing accidents at home.

Key short-term interventions to close the gap in infant mortality include:

- ◆ Reducing smoking in pregnancy and in the early years.
- ◆ Preventing teenage pregnancy.

Chapter 4 of the *Programme* describes the action plan to deliver change. One of the action points under 'Preventing illness and providing effective treatment and care' states that there should be improved access to primary care services in currently under-used areas, by e.g. making greater use of community settings and services including community pharmacy.

Tackling Health Inequalities: A Programme for Action is available at:
www.dh.gov.uk/PolicyAndGuidance/HealthAndSocialCareTopics/HealthInequalities/fs/en

PSNC has produced a LPC Briefing which summarises *Tackling Health Inequalities: A Programme for Action*. This is available at www.psnc.org.uk (located in the 'Resources' section of the website under 'Publications').

Children

It is only right that the government's key health inequality targets focus on improving life chances for children. Children represent 25% of the population and the health, well-being and safety of children is of central importance to society. Whilst remedial action can be taken in later life, early life has a major impact on subsequent mental and physical health and development. Poor socio-economic circumstances in childhood have lasting effects on health. Low birth weight and small size caused by poor nutrition and smoking during pregnancy are associated with CHD, diabetes and hypertension in later life. Early intervention is highly likely to improve children's future health and reduce or prevent inequalities developing.

The NPA's NHS Service Development Department has produced a guide titled *Children's Health Policy and Community Pharmacy*. This guide describes the key areas of policy affecting children, and provides guidance on how to move forward with potential service developments. This guide is available from the NHS Service Development Department by emailing nhs.dev@npa.co.uk, or by calling 01727 858687 ext. 3217.

Government Targets in Scotland

In November 2003, the Scottish Executive Health Department (SEHD) published the 12 national priorities for the NHS for 2004– 2005. These are:

- ◆ Health improvement
- ◆ Healthcare associated infection
- ◆ Cancer
- ◆ Mental health
- ◆ Service redesign
- ◆ 48 - hour access
- ◆ CHD/stroke
- ◆ Delayed discharge
- ◆ Patient focus/public involvement
- ◆ Waiting times
- ◆ Workforce development/staff governance
- ◆ Financial break even

Within these priority areas, specific targets have been set for 2004– 2005. Each NHS Board in Scotland will be measured against these targets in accordance with the performance assessment framework (PAF) for the coming year. Together, the national priorities and PAF create the main planning framework for the NHS in Scotland for 2004– 2005. The key planning document at local level is the Local Health Plan (LHP). These describe how local NHS Boards will meet the national priorities and targets. NHS Boards finalised their LHPs in early 2004 by combining plans from each Local Health Care Co-operative (LHCC) area.

Details of the 12 national priorities are available at:
www.show.scot.nhs.uk/sehd/mels/hdl2003_56.pdf

Details of the 2004– 2005 targets are available at:
www.scotland.gov.uk/library5/health/nhsnt-00.asp

Details of the performance assessment framework for 2004– 2005 is available at:
www.show.scot.nhs.uk/sehd/mels/hdl2003_53.pdf

The NPA's NHS Service Development Department has produced *A Quick Reference Guide to the NHS in Scotland Priorities and Targets 2004– 2005* which describes how community pharmacists can contribute to the targets, and gives examples of the evidence base, sources of practical help and potential sources of funding. This guide is available from the NHS Service Development Department by emailing nhs.dev@npa.co.uk or by calling 01727 858687 ext. 3217.

Health improvement

Improving Health in Scotland: The Challenge, which was published in 2003 as an annex to *Partnership for Care, Scotland's Health White Paper: Improving Health in Scotland* provides a strategic framework to deliver a rapid rate of health improvement in Scotland. It focuses on five of the top ten risk factors (tobacco, alcohol, low fruit and vegetable intake, physical activity levels and obesity) and expects to see progress in four priority areas:

- ◆ early years
- ◆ teenage transition
- ◆ workplace
- ◆ communities.

Targets from *Improving Health in Scotland* are included in LHPs and will be assessed through the PAF.

Improving Health in Scotland: The Challenge is available at:
www.scotland.gov.uk/library5/health/ihis-00.asp

Partnership for Care, Scotland's Health White Paper is available at
www.scotland.gov.uk/library5/health/pfcs-00.asp

In addition, GP practices will also be focusing on meeting the quality indicators in the new GMS contract (see page 35).

Government Targets in Wales

In Wales, Local Health Boards (LHBs) have annual targets to achieve. The Welsh Health Circular 2003(63) *NHS Planning and Commissioning Guidance* provides guidance to LHBs on commissioning during 2003– 2004. Each LHB must publish an Annual Service and Commissioning Plan (ASCP) to describe how it will commission and invest in local services.

In addition, from April 2003 local authorities and LHBs are required to produce a joint health, social care and well-being strategy⁷⁰ which will be implemented from 1st April 2005. The stages involved include:

- ◆ Determining who needs to be involved and consulted when formulating the strategy.
- ◆ A local needs assessment.
- ◆ Formulating the draft and consulting on it (a minimum consultation period of 12 weeks).

This will become a key local strategy for improving the health, social care and well-being of the local population.

The Welsh Health Circular 2003(63) *NHS planning and commissioning guidance* is available at
www.wales.gov.uk/subihealth/index.htm

In addition, GP practices will also be focusing on meeting the quality indicators in the new GMS contract (see page 35).

Government Targets in Northern Ireland

In Northern Ireland, Local Health and Social Care Groups (LHSCGs) have annual targets to achieve which are described in the Department of Health, Social Services and Public Safety *Priorities for Action*. Each LHSCG must publish an annual Primary Care Investment Plan (PCIP) to describe how it will deliver the targets in *Priorities for Action*.

Priorities for Action 2003– 2004 contains a number of priority areas, for example:

Under *Health development* LHSCGs are expected to:

- ◆ Have in place a local health improvement plan which describes how the targets in the *Investment for Health Strategy* will be met (by December 2003).
- ◆ Build on the current smoking cessation programmes.
- ◆ Enhance detection and management of eye diseases in people with diabetes.
- ◆ Increase the uptake of influenza vaccination in high risk groups.
- ◆ Draw up an accreditation scheme for the establishment of 'health promoting pharmacies' (by September 2003).

Under *Making services more responsive* LHSCGs are expected to:

- ◆ Submit their plans for coping with winter pressures (by September 2003).
- ◆ Improve hospital waiting times.
- ◆ Develop at least one project, which will increase the capacity of primary care to address chronic diseases such as asthma or diabetes to reduce pressure in the hospital sector.
- ◆ Extend intermediate care services (by October 2003).
- ◆ Encourage the use of PGDs in community pharmacy.

Under *Primary care* LHSCGs are expected to:

- ◆ Ensure that the community pharmacy medicines management initiative is available from at least 40% of community pharmacies (by March 2004).
- ◆ Facilitate the establishment of supplementary prescribing by nurses and pharmacists in primary care settings (by March 2004).
- ◆ By December 2003, draft action plans to implement the community pharmacy strategy (which was published in early 2004⁶⁸).

Under *Community care* LHSCGs are expected to:

- ◆ Continue to invest in community services which focus on sustaining independence and reducing the need for hospital and residential / nursing home care.

Under *Care of older people* LHSCGs are expected to:

- ◆ Implement a falls prevention strategy of older people.

Under *Mental health* LHSCGs are expected to:

- ◆ Strengthen community mental health services.

Priorities for Action is available at www.dhsspsni.gov.uk

In addition, GP practices will also be focusing on meeting the quality indicators in the new GMS contract (see page 35).

Conclusion

In order to identify where community pharmacy can become involved in public health, it is important to have an understanding of government targets and be aware of what the priorities are for the local PCO and GP practice.

Knowledge of local NHS priorities is key, since the local PCO is more likely to fund a community pharmacy service development if it helps to meet PCO targets.

How to Approach the Primary Care Organisation with a Service Development Proposal

The current agenda for change in the NHS is to enhance the opportunities for pharmacists to be involved in service developments influencing public health, but PCOs need to be persuaded to invest. Pharmacists therefore need to know how to target PCOs and use effective arguments, how to construct successful bids and implement, monitor and continually improve these services.

The following section describes the key steps that should be followed when considering a service development proposal for the local PCO. Each section contains practical guidance (as boxed text) for a smoking cessation service in order to illustrate the points made.

Identify the Priorities of the Local Primary Care Organisation

Any service development proposal must state how it will help the PCO to meet its targets. An understanding of NHS priorities is therefore essential when making an approach to a PCO to discuss extended services in community pharmacy. The NHS is priority-driven and so to get your voice heard, you need to show how the services you can provide will help PCOs to meet their targets. *It is also important to continually stress the benefits of the service to patients.*

'Putting public health into practice' (page 33) describes the key government targets for the NHS. It is important to be aware of what the key public health targets are, and to build your service proposal around meeting these targets.

Speak to the local PCO to find out what their local public health priorities are. For example, in England, ask the PCT for a copy of the LDP. In addition, speak to the local GP practice and find out what their key public health targets are within the GMS quality and outcomes framework (see *Appendix 2*).

Practical guidance for a smoking cessation service

In England, key targets in the *DH Priorities and Planning Framework 2003– 2006*:

- Reduce the rate of smoking, contributing to the national target of reducing the rate in manual groups from 32% in 1998 to 26% by 2010.
- Reduce substantially the mortality rates from the major killer diseases by 2010: from cancer by at least 20% in people under 75 years of age.
- Deliver a 1% point reduction per year in the proportion of women who continue to smoke throughout pregnancy, focusing on disadvantaged groups.

Key targets in the quality indicators in the GMS contract:

- *CHD 4*: The percentage of patients with CHD who smoke, whose notes contain a record that smoking cessation advice has been offered in the last 15 months.
- *Information 5*: The practice supports smokers in stopping by a strategy, which includes providing literature and offering appropriate therapy.

Further Reading

- ◆ Craig G (2003). *Understanding the NHS in England*. Pharm J **271**: 121–3. Available at www.pharmj.com
- ◆ Arnison S, Alexandra E (2003). *Understanding the NHS in Scotland*. Pharm J **271**: 149–51. Available at www.pharmj.com
- ◆ Parry P (2003). *Understanding the NHS in Wales*. Pharm J **271**: 177–9. Available at www.pharmj.com

Identify the Lobbying Tools

In addition to finding out what the overarching targets are for the PCO, it is also important to use any additional government policy papers as a lobbying tool to strengthen your case. *Appendix 3* describes some key government policy papers and guidance.

Practical guidance for a smoking cessation service

In England, the Health Development Agency (see Appendix 1) has produced a guide for PCTs titled *Meeting DoH Smoking Cessation Targets: Recommendations for PCTs* which is available at www.hda-online.org.uk/index.html. This guide provides PCTs with information designed to help them plan how to continue offering high-quality, evidence-based smoking cessation services to their population and meet the targets in the *Priorities and Planning Framework*. The PCT report contains 13 recommendations, describes numerous case studies – a significant number of which include community pharmacy, and outlines key factors for a successful smoking cessation service.

Use the case studies in this guide as a lobbying tool to show the PCT that a successful smoking cessation service involves community pharmacy.

Consider the Timing of the Bid

The proposal for the service development should ideally be put to the PCO in September/October to coincide with their annual planning cycle.

Identify the Published Evidence Base for the Service

PCO budgets are under enormous pressure and so therefore they need to spend their money wisely in areas where there is already evidence of proven benefit. It is important for them to be able to demonstrate the published evidence base for service developments. ‘How effective is public health’ (page 16) describes the published evidence base.

Practical guidance for a smoking cessation service

What is the evidence base that community pharmacists can provide effective smoking cessation services?

Two UK RCTs, conducted in Scotland and Northern Ireland, demonstrate that there is good clinical and cost-effectiveness evidence from the peer-reviewed literature. Abstinence rates in the Scottish trial were 12% for the intervention and 7% for the controls at nine months,¹⁴ and in the Northern Ireland trial, they were 14.3% for the intervention and 2.7% for the controls at one year ($P < 0.001$).¹⁵

Further Reading

- ◆ Jones C (2003). *The evidence-base for community pharmacy service development*. Pharm J 271: 300–2. Available at www.pharmj.com

Identify Similar Established Service Developments

To show that the service development you are proposing has worked successfully in other areas is also a powerful tool.

The PSNC database of community pharmacy projects is available at www.psn.org.uk and can be searched for examples of community pharmacy services.

Practical guidance for a smoking cessation service

The PSNC database of community pharmacy projects at www.psn.org.uk can be searched for examples of smoking cessation services.

Identify the Need for the Service

All PCOs will expect some type of ‘needs assessment’ for any service development, i.e. identification of the current gaps in service provision and a proposal outlining how these gaps can be filled. Therefore, consider a baseline assessment in order to demonstrate a need for the service. This could be as simple as using local demographic data from the annual public health report, speaking to other health professionals, undertaking a simple patient survey or analysing the PMR or OTC sales.

Useful sources of advice and information on needs assessment include:

- ◆ Advice and resources from the RPSGB clinical audit unit at www.rpsgb.org.uk
- ◆ Hooper & Longworth (2002). *Health needs assessment workbook*. London: Health Development Agency. Available at www.hda-online.org.uk
- ◆ Series of articles in the British Medical Journal in 1998 on health needs assessment. For example: Wilkinson (1998). *Assessment in primary care: practical issues and possible approaches*. BMJ 316: 1524–8. Available at www.bmj.com
- ◆ Porteous (2003). *Novel provision of pharmacy services to a deprived area: a pharmaceutical needs assessment*. Int J Pharm Pract 11: 47–54. Available at: www.pharmj.com
- ◆ Williams (2000). *A pharmaceutical needs assessment in a primary care setting*. BJGP 50: 95–9.
- ◆ Anon (2004). *Needs assessment: a practical guide to assessing local needs for services for drug users*. Glasgow: Effective Interventions Unit. Available at: www.scotland.gov.uk/library5/health/nadu.pdf

In England, the Centre for Pharmacy Postgraduate Education (CPPE) will be launching *Public Health – assessing needs for pharmacy development* which is designed to be delivered at a local level by groups, such as the Local Pharmaceutical Committees (LPCs) or Pharmacy Development Groups (PDGs), who have some influence on service development.

The training provided by CPPE will enable pharmacists to:

- ◆ understand the relevance of needs assessment;
- ◆ identify key areas for service development in their local area;
- ◆ use health needs assessment to put together bids for local services.

The programme consists of two workshops on public health needs assessment and an open learning component.

Further details are available on the CPPE website at www.cppe.man.ac.uk (then ‘NHS Plan’ then ‘Public Health’).

Practical guidance for a smoking cessation service

The RPSGB clinical audit unit has examples of various audit templates, e.g. *Health promotion – smoking cessation* which audits pharmacists’ role in smoking cessation. The results of this audit could be used to show the PCO the level of unmet need in the local population. The audit templates are available at www.rpsgb.org.uk.

Consider the Service Specification

At an early stage consider the practical implications of establishing and running the service. There are numerous practical resources to help with this, which are described in *Appendix 4*.

In addition, *Appendix 5* contains the NPA guide on what to consider when establishing a community pharmacy-based screening service.

Practical guidance for a smoking cessation service

PHLink have produced numerous resources for establishing smoking cessation services which are available at www.rpsgb.org.uk

- *Sample PGD and Service Specification for Supply of NRT through pharmacies 2001.*
- *Improving Local Access to Smoking Cessation Therapies by Using PGDs 2003.*

Network with other Healthcare Professionals

It is important to show that you have networked with other healthcare professionals so that you can describe how the service development will become integrated into existing care pathways for patients, and to get their views on the standards / features of the service development.

Practical guidance for a smoking cessation service

What is the view of the local GP practice and of the specialist smoking cessation clinic on the role that the community pharmacist could play?

Identify a Champion in the PCO

Find out who is leading the implementation of public health in the PCO and approach them with your proposal. She or he is likely to be the key person to send your final proposal to.

Key contacts are:

- ◆ The Director of Public Health.
- ◆ The Pharmaceutical Adviser.
- ◆ The pharmacist member of the Executive or Board.

Consider Clinical Governance at an Early Stage

Clinical governance is an essential element of any service in the NHS. It is important to be able to demonstrate the quality of a service, manage the risks within the service and to continually monitor a service to ensure that standards are maintained, or to improve the service where failures or lapses are identified.

The standards in Part 3 'Service specifications' of *Medicines, Ethics and Practice* states that when providing any professional service, pharmacists should ensure that the tenets of clinical governance are followed:

- ◆ That an identifiable pharmacist is accountable for all activities undertaken.
- ◆ That they and staff providing services are suitably trained and competent to perform the tasks required (e.g. *see Appendix 6 for examples of postgraduate training*).
- ◆ That any necessary equipment and suitable facilities are available for the provision of the service, and that these are maintained in good order.
- ◆ That risk assessment and management procedures have been identified and are followed (e.g. *a complaints procedure in place, strict adherence to service protocols, robust patient referral systems*).
- ◆ That adequate records are maintained to enable the service to be monitored (*the PCO will be particularly interested in what outcome measures will be audited to show the success of the service*).

In order to ensure that the proposed scheme has a robust clinical governance framework early links should be formed with the clinical governance team in the PCO. For example, in England speak to the community pharmacy clinical governance facilitator at the PCT.

Further Reading:

- ◆ Anon (2001). *Clinical Governance in Community Pharmacy: Guidelines on Good Practice for the NHS*. London: Department of Health. Available at: www.dh.gov.uk/PolicyAndGuidance/HealthAndSocialCareTopics/ClinicalGovernance/fs/en
- ◆ Anon (1999). *Achieving Excellence in Pharmacy through Clinical Governance*. London: RPSGB. Available at www.rpsgb.org.uk/practice/clingov.htm
- ◆ Anon (2003). *Beyond the Baseline: The Role of Clinical Governance Facilitators Working with Community Pharmacists*. London: RPSGB. Available at: www.rpsgb.org.uk/practice/clingov.htm
- ◆ Anon (2002). *Implementing Clinical Governance in Community Pharmacy (in England): A Local Development Plan*. St. Albans: National Pharmaceutical Association. Available at www.npa.co.uk

Identify a Potential Source of Funding

It is important to be aware of the variety of funding sources available, particularly those that may not be immediately obvious in relation to pharmacy. In England, payment for local enhanced services in the new pharmacy contract will be based on a national tariff.

Information on funding can be found in:

- ◆ Anon (2003). *Sources of Funding: A Guide for Community Pharmacists*. LPC Support programme. Aylesbury: PSNC. Available at: www.psn.org.uk
- ◆ Anon (2003). *A Quick Reference Guide to the DoH Priorities and Planning Framework 2003– 2006*. St Albans: National Pharmaceutical Association. Available from the NHS Service Development Department by emailing nhs.dev@npa.co.uk, or by calling 01727 858687 ext. 3217.
- ◆ Anon (2003). *A Quick Reference Guide to the NHS in Scotland Priorities and Targets 2004– 05*. St Albans: National Pharmaceutical Association. Available from the NHS Service Development Department by e-mailing nhs.dev@npa.co.uk, or by calling 01727 858687 ext. 3217.

These documents provide full details of all potential funding available to community pharmacists.

Practical guidance for a smoking cessation service

Potential sources of funding for a community pharmacy-led smoking cessation service in England includes:

Sure Start

Sure Start aims to improve the health and well-being of families and children before and from birth by setting up local programmes to improve services for families with children under four years of age. By 2004, there will be at least 500 Sure Start local programmes that will be concentrated in neighbourhoods where a high proportion of children are living in poverty. Sure Start has a number of key targets including decreasing the number of mothers who smoke. Details are available at: www.surestart.gov.uk

Smoking cessation monies

The comprehensive DH website at: www.dh.gov.uk/PolicyAndGuidance/HealthAndSocialCareTopics/Tobacco/fs/en describes Government funding for smoking cessation initiatives.

Tobacco Alliance Network

A network of 42 DH funded Tobacco Alliances covering the whole of England has been established with the aim of developing a comprehensive programme of public education to persuade smokers to quit and non-smokers not to start. It is targeting the most deprived sections of the community. Details are available at: www.dh.gov.uk/PolicyAndGuidance/HealthAndSocialCareTopics/Tobacco/fs/en

Further Reading

- ◆ Parsons B, Craig G (2003). *NHS funding for community pharmacy service development in England*. *Pharm J* **271**: 323–5.

Summary

In summary your service development proposal should contain:

- ◆ A description of what the service development is and what it sets out to achieve.
- ◆ Why the PCO should consider the service – consider PCO targets, national lobbying tools and the results of the local needs assessment.
- ◆ How the service will be integrated with other local services.
- ◆ The evidence base for the scheme – both published papers and examples of successful schemes in other areas should be included.
- ◆ The benefits to patients.
- ◆ The benefits to other services, e.g. GP practices, social services.
- ◆ A description of the resource implications of the service.
- ◆ How the service will be monitored.

Further Resources to Help You

- ◆ Russell R (2003). *How to Establish a New Community Pharmacy Service*. Pharm J **271**: 237–9.
- ◆ Anon (2002). *Preparing a Business Proposal: a Briefing Document*. St. Albans: National Pharmaceutical Association. Available from the NHS Service Development Department by e-mailing nhs.dev@npa.co.uk or by telephoning 01727 858687 ext. 3217.

Public Health Related Organisations

Association of Public Health Observatories

A Public Health Observatory has been established in each of the NHS regions to collect information about health and health inequality in order to track changes over time. The main tasks of the observatories are to support local bodies by:

- ◆ Monitoring health and disease trends and highlight areas for action.
- ◆ Identifying gaps in health information.
- ◆ Advising on methods for health and health inequality impact assessments.
- ◆ Drawing together information from different sources in new ways to improve health.
- ◆ Carrying out projects to highlight particular health issues.
- ◆ Evaluating progress by local agencies in improving health and cutting inequality.
- ◆ Looking ahead to give early warning of future public health problems.

Website: www.pho.org.uk

Department of Health, Social Services and Public Safety in Northern Ireland

The Department of Health, Social Services and Public Safety in Northern Ireland provides the most recent information and guidance relating to public health issues in Northern Ireland.

Website: www.dhsspsni.gov.uk

Department of Health, England

The Department of Health, England provides the most recent information and guidance relating to public health issues in England.

Website: www.dh.gov.uk/Home/fs/en

Faculty of Public Health

The Faculty of Public Health is a faculty of the Royal College of Physicians of the United Kingdom. It aims to promote, for the public benefit, the advancement of knowledge in the field of public health, develop public health with a view to maintaining the highest possible standards of professional competence and practice, and to act as an authoritative body for consultation in matters of education or public interest concerning public health. It identifies three areas of public health practice: health protection and prevention; health and social care and health improvement.

NB: *This site has links to a large number of other institutions of relevance to public health.*

Website: www.fph.org.uk

Health Development Agency

The Health Development Agency (HDA) is the national authority that gathers evidence of what works, advises on good practice and supports all those working to improve people's health and reduce health inequalities. To achieve this, the HDA works in partnership across sectors to support informed decision-making at all levels and the development of effective practice.

NB: *The HDA publishes numerous evidence based reviews and guidance for the NHS on how to tackle health inequalities. These are excellent sources of information.*

Website: www.hda.nhs.uk

Health Protection Agency

The Health Protection Agency is a national organisation for England and Wales dedicated to protecting people's health and reducing the impact of infectious diseases, chemical hazards, poisons and radiation hazards. It brings together the expertise of health and scientific professionals working in public health, communicable disease, emergency planning, infection control, laboratories, poisons, chemical and radiation hazards.

Website: www.hpa.org.uk

Health Promotion Agency for Northern Ireland

The Health Promotion Agency for Northern Ireland was set up in 1990 as a special agency of the Department of Health, Social Services and Public Safety. Its aim is to provide leadership, strategic direction and support to all those involved in promoting health in Northern Ireland.

Website: www.healthpromotionagency.org.uk/index.html

Institute of Public Health

A department of the University of Cambridge, the Institute of Public Health aims to:

- ◆ Improve the health of the population by understanding the cause and natural history of disease.
- ◆ Identify and evaluate new possibilities for both primary and secondary care intervention.
- ◆ Monitor on a population basis interventions as they are currently applied.

Website: www.iph.cam.ac.uk

National Assembly, Government of Wales

The National Assembly, Government of Wales provides the most recent information and guidance relating to public health issues in Wales.

Website: www.wales.gov.uk

The National Public Health Service for Wales

The National Public Health Service for Wales brings together the public health resources of the five former health authorities in Wales, which include input from academic departments, with those of the Public Health Laboratory Service in Wales, including the Communicable Disease Surveillance Centre.

Website: www.wales.nhs.uk

The National Treatment Agency for Substance Misuse

The National Treatment Agency (NTA) aims to increase the availability, capacity and effectiveness of treatment for drug misuse in England. It has a key role in holding local Drug Action Teams to account in their role as commissioners of drug treatment services.

Website: www.nta.nhs.uk

NHS Health Scotland

NHS Health Scotland is a new special health board created on 1 April 2003 bringing together the Public Health Institute of Scotland and the Health Education Board for Scotland (HEBS) (see page 51). It provides a national focus for improving health, and works with the Scottish Executive and other key partners to take action to improve health and reduce inequalities in Scotland.

Website: www.healthscotland.com

Public Health Institute of Scotland

The Public Health Institute of Scotland is an NHS organisation, created to serve the whole of the public health community in Scotland, within the NHS and beyond. It aims to protect and improve the health of the people of Scotland by working with relevant agencies and organisations to increase the understanding of the determinants of health and ill health, help formulate public health policy and increase the effectiveness of the public health endeavour.

It aims to achieve this by working with the public health community to:

- ◆ Develop the public health information base
- ◆ Develop the public health evidence base
- ◆ Develop the public health skills base

Website: www.phis.org.uk

Health Education Board for Scotland

The Health Education Board for Scotland was established on 1 April 1991 as a special health board within NHS Health Scotland. The Health Education Board for Scotland gives leadership to the health education effort in Scotland. The Board aims to promote good health through the empowerment of individuals, groups and communities, by playing its part in:

- ◆ Ensuring that people have adequate information about health and factors which influence it.
- ◆ Helping people to acquire the motivation and skills that enable them to safeguard and enhance their own health and other people's health.
- ◆ Promoting commitment to, and participation in, health promotion at all levels in society.
- ◆ Encouraging and enabling policy-makers at all levels to recognise possible health consequences of their activities and to make policies that promote health

Website: www.hebs.com

PharmacyHealthLink

PharmacyHealthLink (PHLink) is a leading national charity that works to improve the health of the public through the expertise of pharmacists and their staff. PHLink provides research-based public health information to pharmacists and also influences government and the pharmacy profession.

Website: www.pharmacyhealthlink.org.uk

Public Health Electronic Library

The Public Health Electronic Library is a national 'one stop shop' for all information relating to public health. It aims to provide knowledge and know-how to promote health, prevent disease and reduce health inequalities. Its primary audience is professionals within the public health community.

Website: www.phel.gov.uk

Public Health Resource Unit

The Public Health Resource Unit supports change and development within the NHS and other organisations to bring about improvements in health and healthcare. It aims to bridge the gap between research and service and works in five major areas: support to public health professional development; educational programmes; public health projects team (including workshops and conferences); public health information (intelligence).

Website: www.phru.org.uk

The Royal Institute of Public Health

The Royal Institute of Public Health is an independent organisation promoting public health and hygiene through education and training, information, quality testing and policy development.

Website: www.riphh.org.uk

The Scottish Executive Health Department

The Scottish Executive Health Department is responsible for health policy and the administration of the NHS in Scotland. The Public Health Policy Unit of the Health Department is responsible for promoting the health of the people of Scotland.

Website: www.show.scot.nhs.uk

Scottish Executive's Effective Interventions Unit

The Effective Interventions Unit was set up in 2000 to identify and disseminate effective practice to support the implementation of the drug misuse strategy, *Tackling Drugs in Scotland: Action in Partnership* (1999).

Website: www.drugmisuse.isdscotland.org/eiu/eiu.htm

UK Public Health Association

The UK Public Health Association is an independent UK-wide voluntary association, bringing together individuals and organisations from all sectors, who share a common commitment to promoting the public's health. It is a membership-based organisation that aims to promote the development of healthy public policy at all levels of government and across all sectors, and to support those working in public health either professionally or in a voluntary capacity.

Website: www.ukpha.org.uk

Priorities for Public Health in England

In order to keep up-to-date with the public health agenda the following website should be accessed on a regular basis:

- ◆ DH health inequalities website at:
www.dh.gov.uk/PolicyAndGuidance/HealthAndSocialCareTopics/HealthInequalities/fs/en

In primary care the NHS is currently concentrating on three sets of targets contained in the following:

- ◆ The targets in the DH *Priorities and Planning Framework 2003–2006*.
- ◆ The quality indicators in the new GMS contract.
- ◆ The PCT performance indicators.

The table below gives a summary of these targets that relate to public health and potential community pharmacy services that could be offered to support these government targets. (**NB:** the table contains an example of targets and is not meant as a comprehensive list:)

Area	Key government targets	What can community pharmacy offer?
Smoking cessation	<p>DH Priorities and Planning Framework:</p> <ul style="list-style-type: none"> □ Reduce the rate of smoking, contributing to the national target of reducing the rate in manual groups from 32% in 1998 to 26% by 2010. □ Reduce substantially the mortality rates from the major killer diseases by 2010: from cancer by at least 20% in people under 75 years of age. □ Deliver a 1% point reduction per year in the proportion of women who continue to smoke throughout pregnancy, focusing on disadvantaged groups. <p>PCT performance indicator:</p> <ul style="list-style-type: none"> □ Number of smokers who have quit at four-week follow-up with the NHS smoking cessation services. <p>GMS contract Quality Indicators:</p> <ul style="list-style-type: none"> □ CHD 4: The percentage of patients CHD who smoke, whose notes contain a record that smoking cessation advice has been offered in the last 15 months. □ DM 4: The percentage of patients with diabetes who smoke, and whose notes contain a record that smoking cessation advice has been offered in the last 15 months. □ Asthma 5: The percentage of patients with asthma who smoke, whose notes contain a record that smoking cessation advice has been offered in the past 15 months. □ Information 5: The practice supports smokers in stopping by a strategy, which includes providing literature and offering appropriate therapy. 	Community pharmacy-led smoking cessation services, as part of the integrated network of specialist NHS smoking cessation services.

Area	Key government targets	What can community pharmacy offer?
CHD	<p>DH Priorities and Planning Framework:</p> <ul style="list-style-type: none"> □ Reduce substantially the mortality rates from heart disease by at least 40% in people under 75 years of age. □ Update GP practice-based registers so that patients with CHD and diabetes continue to receive appropriate advice and treatment in line with NSF standards. □ Improve the management of patients with heart failure in line with the NICE Clinical Guidelines. <p>GMS contract Quality Indicators:</p> <ul style="list-style-type: none"> □ CHD 6: The percentage of patients with CHD in whom the last BP reading (measured in the last 15 months) is 150/90 or lower. □ CHD 8: The percentage of patients with CHD whose last measured total cholesterol (measured in the last 15 months) is 5mmol/l or less. □ CHD 9: The percentage of patients with CHD with a record in the last 15 months that aspirin, an alternative anti-platelet therapy, or an anticoagulant is being taken (unless a contra-indication or side effects are recorded). □ CHD 10: The percentage of patients with CHD who are currently treated with a B blocker (unless a contraindication or side effects are recorded). □ CHD 11: The percentage of patients with a history of MI (diagnosed after the 1st April 03) who are currently treated with an ACE inhibitor . 	<p>Participation in health promotion and education to promote smoking cessation, healthy eating, etc.</p> <p>Integration of community pharmacy screening services as part of NHS screening services for those at risk of CHD.</p> <p>Use community pharmacy PMRs to target patient intervention in CHD.</p> <p>Community pharmacy-led medicines management services for CHD patients, hypertensive patients, and patients with a history of TIA or stroke.</p>
Drug misuse	<p>DH Priorities and Planning Framework:</p> <ul style="list-style-type: none"> □ Increase the participation of problem drug users in drug treatment programmes by 55% by 2004 and by 100% by 2008 (against 1998 baseline), and increase year-on-year the proportion of users successfully sustaining or completing treatment programmes. □ Reduce drug-related deaths by 20% by 2004 (against 1999 baseline). <p>PCT performance indicator:</p> <ul style="list-style-type: none"> □ Percentage of GP practices in a shared care scheme for problematic drug misusers. 	<p>Integrate community pharmacy into drug misuse services, e.g. supervised methadone schemes.</p>
Sexual health	<p>DH Priorities and Planning Framework:</p> <ul style="list-style-type: none"> □ Achieve agreed local teenage conception reduction targets while reducing the gap in rates between the worst fifth of wards and the average by at least a quarter in line with national targets. <p>PCT performance indicator:</p> <ul style="list-style-type: none"> □ Teenage pregnancy: conceptions below age 18 (percentage change in rate between 1998 baseline and 2002). <p>GMS contract Quality Indicator:</p> <ul style="list-style-type: none"> □ Con 1: The team has a written policy for responding to requests for emergency contraception. 	<p>Set up EHC PGD schemes in community pharmacy and encourage use by teenagers.</p>

Area	Key government targets	What can community pharmacy offer?
Immunisation	<p>DH Priorities and Planning Framework:</p> <ul style="list-style-type: none"> □ Achieve the target of 70% uptake in 'flu immunisation in people aged 65 years and over, targeting populations in the 20% of areas with the lowest life expectancy. <p>PCT performance indicator:</p> <ul style="list-style-type: none"> □ People vaccinated against 'flu as a percentage of number of people aged 65 years and over. <p>GMS contract Quality Indicators:</p> <ul style="list-style-type: none"> □ CHD 12: The percentage of patients with CHD who have a record of 'flu vaccination in the preceding 1 September to 31 March. □ DM 18: The percentage of patients with diabetes who have had 'flu immunisation in the preceding 1 September to 31 March. □ Asthma 7: The percentage of patients with asthma aged 16 years and over who have had an 'flu immunisation in the preceding 1 September to 31 March 	<p>Involve community pharmacy in campaigns to raise awareness of 'flu vaccinations.</p> <p>Consider a community pharmacy-based immunisation programme integrated with the local NHS 'flu campaign.</p>
Mental health	<p>DH Priorities and Planning Framework:</p> <ul style="list-style-type: none"> □ Reduce the mortality rate from suicide and undetermined injury by at least 20% by 2010. □ Ensure that by April 2004 protocols are in place across all health and social care systems for the care and management of older people with mental health problems. <p>PCT performance indicator:</p> <ul style="list-style-type: none"> □ PCT commissioning of NHS Plan deliverables: mental health (adults). <p>GMS contract Quality Indicators:</p> <ul style="list-style-type: none"> □ Epilepsy 3: The percentage of patients age 16 and over on drug treatment for epilepsy who have a record of medication review in the previous 15 months. □ MH 3: The percentage of patients on lithium therapy with a record of lithium levels checked in the previous 12 months. 	<p>Involve community pharmacy in health promotion and education about the risks associated with key classes of drug.</p> <p>Integrate community pharmacy into the community mental health teams to provide medication management support to patients with mental health.</p> <p>Community pharmacy medicines management service to support the reduction in inappropriate benzodiazepine prescribing. Community pharmacy-led medicines management services for epileptic and mental health patients.</p> <p>The community pharmacist could flag to patients as part of the repeat dispensing service, when the relevant tests were due.</p>
Accidents	<p>DH Priorities and Planning Framework:</p> <ul style="list-style-type: none"> □ All health and social care systems to have established an integrated falls service by 2005. 	<p>Medication reviews and provision of advice to patients on the side effects that some medicines have on the risk of falls.</p> <p>Participation in campaigns to raise awareness of ways to prevent falls in the home.</p>

Area	Key government targets	What can community pharmacy offer?
Asthma	<p>GMS contract Quality Indicator:</p> <ul style="list-style-type: none"> □ Asthma 6: The percentage of patients with asthma who have had an asthma review in the last 15 months. 	<p>Sustainable medicines management services to asthmatic patients.</p> <p>Community pharmacy-led medicines management services for asthma and COPD patients.</p>
Diabetes	<p>DH Priorities and Planning Framework:</p> <ul style="list-style-type: none"> □ By 2006, a minimum of 80% of people with diabetes to be offered screening for the early detection of diabetic retinopathy. <p>PCT performance indicator:</p> <ul style="list-style-type: none"> □ Diabetic retinopathy screening. <p>GMS contract Quality Indicators:</p> <ul style="list-style-type: none"> □ DM 6 (and DM 7): The percentage of patients with diabetes in whom the last HbA1c is 7.4 (or 10) or less (or equivalent test / reference range depending on local laboratory) in last 15 months. □ DM 12: The percentage of patients with diabetes in whom the last BP is 145/85 or lower. □ DM 15: The percentage of patients with diabetes with proteinuria or micro-albuminuria who are treated with ACE inhibitors (or A2 antagonists). □ DM 17: The percentage of patients with diabetes whose last measured total cholesterol within the previous 15 months is 5 or less. 	<p>Participation in campaigns to raise awareness of the importance of retinopathy screening.</p> <p>Sustainable medicines management services to diabetic patients.</p> <p>Community pharmacy-led medicines management services for diabetic patients.</p>

Key Policy Papers, Sources of Information and Practical Toolkits

(NB: The table contains an example of key documentation and is not meant as a comprehensive list.)

Area	Key policy papers, sources of information and practical toolkits
Smoking cessation	<p><u>England</u></p> <p><i>Meeting DH smoking cessation targets: recommendations for PCTs.</i> Health Development Agency January 2003 Available at www.hda-online.org.uk/index.html</p> <p>The HDA identifies the evidence of what works to improve people's health and reduce health inequalities. This resource pack provides PCTs with information designed to help them plan how to continue offering high-quality, evidence-based smoking cessation services to their population and meet the targets in the <i>Priorities and Planning Framework</i>. This is complemented by <i>Meeting DH smoking cessation targets: recommendations for service providers</i>, which contains recommendations for staff involved in providing treatment through smoking cessation services.</p> <p>The report contains numerous case studies – a significant number of which include community pharmacy – and outlines key factors for a successful smoking cessation service.</p> <p><i>Standards for training in smoking cessation treatments.</i> Health Development Agency June 2003 Available at www.hda-online.org.uk/index.html</p> <p>The purpose of this training standard from the HDA is to raise the quality of the training provided to smoking cessation advisers. It also provides individual practitioners, service providers, PCTs and strategic health authorities with a robust framework against which to measure current and future performance.</p> <p>The standard provides advice on the training requirements and competencies for those providing three levels of smoking cessation advice, i.e. brief interventions, intensive one-to-one support and advice, and group interventions.</p> <p><u>Scotland</u></p> <p><i>A breath of fresh air for Scotland. Improving Scotland's health: the challenge. Tobacco Control Action Plan.</i> Scottish Executive 2003 Available at www.scotland.gov.uk/library5/health/abfa-00.asp</p> <p>The action plan contains a range of actions, including an additional £4 million for smoking cessation services over two years. Chapter 4 describes smoking cessation services and contains a:</p> <ul style="list-style-type: none"> <input type="checkbox"/> a description of all the potential funding streams for smoking cessation services; <input type="checkbox"/> a statement that 'GPs, practice nurses, midwives, dentists, pharmacists, health visitors and other health professionals all potentially have a role to play in giving smoking cessation advice'.

Area	Key policy papers, sources of information and practical toolkits
	<p><u>Northern Ireland</u></p> <p><i>A five-year tobacco action plan. DHSSPS June 2003</i> Available at www.dhsspsni.gov.uk/index.html</p> <p>The <i>Tobacco Action Plan</i> sets four key targets to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> increase the proportion of 11 to 16-year olds who do not smoke from 86.5% in 2000 to 89% by 2006; <input type="checkbox"/> increase the number of pregnant women who do not smoke from 78% in 2000 to 82% in 2005; <input type="checkbox"/> increase the proportion of adults who do not smoke from 73% in 2000/01 to 75% in 2006/07; <input type="checkbox"/> increase the proportion of non-smokers in manual groups from 65% in 2000/01 to 69% in 2006/07. <p>The main actions include:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Further development of sustained public information campaigns. <input type="checkbox"/> Further development and promotion of smoking cessation services in a variety of settings. <input type="checkbox"/> Work with the HPSS, local councils and others to promote the introduction of smoke-free policies. <p>The <i>Plan</i> describes the role of the community pharmacist in providing advice and supplying smoking cessation products under PGD.</p>
CHD	<p><u>England</u></p> <p>NSF for CHD Available at www.dh.gov.uk/PolicyAndGuidance/HealthAndSocialCareTopics/CoronaryHeartDisease/fs/en</p> <p>CHD is the biggest killer in the UK. The NSF for CHD is intended to enhance quality of services, reduce variations in the incidence of CHD and access to CHD services across the country. The NSF document:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Sets 12 national standards of care (intended to remain relevant for 10 years or more) for preventing and treating CHD. <input type="checkbox"/> Recommends service models enabling the efficient delivery of those standards. <input type="checkbox"/> Suggests indicators and clinical audit criteria that can be used to assess the quality of prevention and treatment. <input type="checkbox"/> Identifies early priorities. <input type="checkbox"/> Describes milestones and goals that will mark progress with implementation. <input type="checkbox"/> Describes the underpinning programmes and gives examples of practical tools to help implement the standards.
Drug misuse	<p><u>England</u></p> <p>National Treatment Agency for Substance Misuse The National Treatment Agency (NTA) has a key role in holding local Drug Action Teams (DATs) to account in their role as commissioners of drug treatment services. The NTA website is available at www.nta.nhs.uk Key publications include:</p> <p><i>Models of Care. NTA March 2003</i> This sets out a national framework for commissioning integrated drug treatment systems for adult drug misusers in England. All commissioners of drug treatment services will be expected to plan and commission services, based on the system outlined in <i>Models of Care</i>.</p>

Area	Key policy papers, sources of information and practical toolkits
	<p>It is published in two parts:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Part one is for drug treatment commissioners and those responsible for local implementation. <input type="checkbox"/> Part two is a detailed reference document for drug treatment managers and providers, and those responsible for assuring quality and appropriate delivery of local drug treatment services. <p><i>Commissioners resource pack. NTA 2003</i> The <i>Commissioners Resource Pack</i> will be built up over a period of time. Current service specifications include:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Information, advice and support services. <input type="checkbox"/> Needle exchange and harm reduction. <p><u>Northern Ireland</u></p> <p><i>Prevalence of problem heroin use in Northern Ireland. DHSSPS February 2003</i> Available at www.dhsspsni.gov.uk</p> <p>This report discusses various treatment options for those dependent on heroin and how these might be operated in Northern Ireland. Sections 4.1.3 and 4.1.4 gives an overview of the evidence base for the role of the pharmacist in shared-care arrangements, and the training implications.</p> <p>There are two key recommendations in the report for community pharmacy:</p> <ul style="list-style-type: none"> <input type="checkbox"/> 6.10 Endorses the implementation of shared-care protocols for substance misuse. <input type="checkbox"/> 6.12 Recommends that clients should have supervised methadone consumption for at least the first six months.
Sexual health	<p><u>England</u></p> <p><i>An evaluation resource to support the Teenage Pregnancy Strategy. Health Development Agency January 2003</i> Available at www.hda-online.org.uk/html/resources/publications.html</p> <p>This strategy was commissioned by the DH Teenage Pregnancy Unit and provides an overview of how to evaluate services that are commissioned to implement the Teenage Pregnancy Strategy. It includes an overview of evaluation principles, a checklist to help structure the process, examples of good practice, plus sample questionnaires and tools.</p> <p><i>Effective commissioning of sexual health and HIV services: a sexual health and HIV commissioning toolkit for PCTs and local authorities. DH January 2003</i> Available at www.dh.gov.uk/PolicyAndGuidance/HealthAndSocialCareTopics/SexualHealth/fs/en</p> <p>This toolkit supports PCTs in exploring options for improving local services. Key sections in this document include:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Section 4 – best practice guidelines for contraceptive services. This states, for example, that elements of a best practice contraceptive service include arrangements for timely provision of all types of emergency contraception. <input type="checkbox"/> Appendix 6 – further sources of help and information. <input type="checkbox"/> Appendix 8 – a clinical governance framework. <p><i>Effective sexual health promotion: a toolkit. DH June 2003</i> Available at www.dh.gov.uk/PolicyAndGuidance/HealthAndSocialCareTopics/SexualHealth/fs/en</p> <p>This toolkit is for PCTs and others working in the field of promoting sexual health and HIV prevention. The toolkit aims to promote a structured approach to sexual health promotion, and offers practical advice to establish such a service.</p>

Area	Key policy papers, sources of information and practical toolkits
	<p>This toolkit has been produced in response to the 2002 DH action plan to implement the national strategy for sexual health and HIV. This toolkit should be used alongside two previous DH toolkits:</p> <ul style="list-style-type: none"> <input type="checkbox"/> <i>Health promotion toolkit: good practice and practical tips.</i> <input type="checkbox"/> <i>Effective commissioning of sexual health and HIV services: a sexual health and HIV commissioning toolkit for PCTs and local authorities.</i> <p>In addition to providing guidance to PCTs on establishing successful sexual health promotion, the toolkit also provides a useful summary of the evidence base of effective interventions for teenage pregnancy and HIV prevention.</p> <p><u>Northern Ireland</u></p> <p><i>Teenage pregnancy and parenthood: strategy and action plan 2002-2007. DHSSPS November 2002</i> Available at www.dhsspsni.gov.uk</p> <p>The rates of teenage pregnancy in Northern Ireland are amongst the highest in Europe and are greatest in areas of social and economic deprivation. <i>The Strategy</i> includes targets to reduce teenage pregnancies, particularly those under 17 years of age. Targets in the strategy include a reduction in teenage pregnancies, developing a sexual health promotion strategy and making sexual health services more accessible.</p> <p><i>Teenage pregnancy and parenthood: strategy and action plan 2002–2007. DHSSPS 2002</i> Available at: www.dhsspsni.gov.uk</p> <p>This strategy for Northern Ireland aims to reduce teenage pregnancies, particularly those under 17 years. Targets include developing a sexual health promotion strategy and making sexual health services more accessible.</p> <p><u>Scotland</u></p> <p><i>Enhancing sexual wellbeing in Scotland. A draft sexual health and relationship strategy. Scottish Executive October 2003</i> Available at www.scotland.gov.uk/pages/news/2003/11/SEhd575.aspx</p> <p>This draft strategy encourages the development of further services from community pharmacies building on the success of existing schemes to supply of EHC via PGD, to supply <i>Chlamydia</i> testing through pharmacies, to actively take part in local health promotion campaigns, and to signpost patients to relevant services.</p>
Mental health	<p><u>England</u></p> <p>NSF for mental health Available at www.dh.gov.uk/PolicyAndGuidance/HealthAndSocialCareTopics/MentalHealth/fs/en</p> <p>The main aim of the NSF for mental health is to improve 24-hour care for people with mental health problems. The NSF addresses five main areas of care:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Mental health promotion. <input type="checkbox"/> Primary care and access to services for anyone with mental health problems. <input type="checkbox"/> Effective services for people with severe mental health problems. <input type="checkbox"/> Individuals who care for people with mental health problems. <input type="checkbox"/> Action necessary to achieve the target to reduce suicides.

Area	Key policy papers, sources of information and practical toolkits
	<p><i>National suicide prevention strategy for England. DH September 2002</i> Available at www.dh.gov.uk/PolicyAndGuidance/HealthAndSocialCareTopics/MentalHealth/fs/en</p> <p>This important strategy aims to ensure that steps are being taken to meet the target of reducing the death rate from suicide and undetermined injury by at least a fifth by 2010 as described in <i>Saving lives: our healthier nation</i> and reinforced in the NSF for mental health. Implementation of the strategy will be taken forward by the National Institute for Mental Health in England (NIMHE) at www.nimhe.org.uk. NIMHE is an organisation based within the Modernisation Agency at the DH.</p> <p>This document describes a number of goals including:</p> <ul style="list-style-type: none"> □ <i>To promote mental well-being in the wider population</i>— the document targets specific population groups including socially excluded and deprived groups, black and ethnic minority groups, and people who misuse drugs and/or alcohol. It also describes the tools available to help support each target, e.g. <i>Making it happen: a guide to delivering mental health promotion</i> which is available at www.nimhe.org.uk □ <i>To reduce the availability and lethality of suicide methods</i> – this includes a target to reduce the number of suicides as a result of self-poisoning. The document states that NIMHE will consult further with the Medicines Control Agency, the National Prescribing Centre, and PCOs to identify additional steps that can be taken to promote safer prescribing of antidepressants and analgesics and to publicise the health dangers of paracetamol in overdose. <p><u>Scotland</u></p> <p><i>Choose life: preventing suicide in Scotland: a national strategy and action plan. Scottish Executive 2002</i> Available at www.scotland.gov.uk</p> <p>This strategy for Scotland aims to tackle rising rates of suicides by achieving a 20% reduction in the suicide rate by 2013. The priority groups are those who abuse substances, people in prison, young people, people with mental health problems, people who attempt suicide, people affected by suicidal behaviour, people with mental health problems, children and young people. This document is a useful resource if you are involved in providing a service or developing the role of the community pharmacist working with drug misusers, people with severe mental health, prison services or services relating to suicide prevention.</p> <p><i>National programme for improving mental health and well-being in Scotland. Scottish Executive September 2003</i> Available at www.scotland.gov.uk</p> <p>This is a three-year action plan which will further direct the work of the national programme in supporting national and local efforts to raise the profile of mental health, support action in mental health improvement (promotion and prevention), address the stigma of mental ill health and prevent suicide in Scotland.</p> <p><i>The Programme</i> is supported by £24 million pounds of funding and has four key aims during 2003–2006 which are to:</p> <ul style="list-style-type: none"> □ raise awareness and promoting mental health and well-being; □ eliminate stigma and discrimination; □ prevent suicide; □ promote and support recovery. <p>Resources to support this <i>Programme</i> will be made available on a new website called 'wellontheweb' which can be accessed at www.wellontheweb.net</p>

Area	Key policy papers, sources of information and practical toolkits
	<p><u>Northern Ireland</u></p> <p><i>Promoting mental health strategy and action plan 2003–2008.</i> DHSSPS January 2003 Available at www.dhsspsni.gov.uk/publications/index.html</p> <p>This strategy and action plan comprises a number of actions grouped under policy development, raising awareness and reducing discrimination, improving knowledge and skills and preventing suicide. The actions include the development of policies and programmes to promote mental health and the development of a suicide awareness programme in each health and social services board area.</p>
Accidents	<p><u>England</u></p> <p><i>Preventing accidental injury: Priorities for action.</i> DH October 2002 Available at www.dh.gov.uk/PolicyAndGuidance/HealthAndSocialCareTopics/Accidents/fs/en</p> <p>The Accidental Injury Task Force was established to identify from the available evidence those steps that would have the greatest impact in preventing injury. This report by the Task Force reviews the evidence-base for accidents and gives practical guidance for the way forward. It suggests that for relatively modest investment good progress can be made quickly towards the achievement of the 2010 target in <i>Saving Lives: Our Healthier Nation</i> for injury prevention. This document should be read together with the ‘Background Papers’ and the ‘Appendices’ also on the website.</p> <p>Preventing injuries to older people from falls are a key part of <i>Preventing accidental injury: priorities for action</i>. For example, as an immediate priority the document describes targeting ‘at risk’ populations of older people towards interventions that are proven to work (e.g. prevention and treatment of osteoporosis, multi-faceted assessment and intervention programmes to prevent falls) and recommends the development of falls’ services. The background paper <i>Priorities for Prevention: Working Group for Older People</i> further discusses the evidence base and also discusses targeting ‘at risk’ groups of elderly patients and performing detailed assessments (including medication review).</p> <p><i>How can we help older people not to fall again? Implementing the older people’s NSF falls standard: support for commissioning good services.</i> DH July 2003 Available at www.dh.gov.uk/PolicyAndGuidance/HealthAndSocialCareTopics/OlderPeoplesServices/fs/en</p> <p>The aim of this document is to provide guidance for commissioners on implementing the NSF for older people standard 6 on falls prevention. The document reviews the evidence base for falls, what the key interventions to prevent falls are, how local implementation should be driven forward by local implementation teams, the evidence base for effective falls prevention services (including osteoporosis prevention and treatment, and medication review), and describes established falls services.</p> <p><i>Guide to commissioning good services for falls prevention.</i> DH September 2003 Available at www.dh.gov.uk/PolicyAndGuidance/HealthAndSocialCareTopics/OlderPeoplesServices/fs/en</p> <p>This document provides guidance for commissioners to support the delivery of the falls prevention section of the NSF for older people. The guidance states that interventions are most beneficial when targeted at those at risk identified through agreed assessment processes, and when integrated in a falls strategy developed with the full range of local services.</p> <p>The guidance reviews the evidence base for falls prevention, including medication review and promoting healthy living. The appendices contain a wealth of information on the evidence base for falls prevention.</p> <p>The guidance also contains advice on how to argue the case for funding falls prevention services.</p>

Area	Key policy papers, sources of information and practical toolkits
	<p><u>Wales</u></p> <p>Strategy for older people. Assembly for Wales 2003 Available at www.wales.gov.uk/subisocialpolicy/content/ssg/contents-e.htm</p> <p><i>The Strategy</i> sets out a framework for statutory and voluntary organisations alike to work on over the next 10 years. Its implementation will be based on collaboration between the Assembly, local government, the NHS and many others to ensure a co-ordinated approach is taken across Wales to address older people's issues. Strategy implementation began in April 2003.</p>
Diabetes	<p><u>England</u></p> <p>NSF for diabetes Available at www.dh.gov.uk/PolicyAndGuidance/HealthAndSocialCareTopics/Diabetes/fs/en</p> <p>The NSF for diabetes was published in two parts:</p> <ul style="list-style-type: none"> <input type="checkbox"/> The standards and key interventions to raise the standards of diabetes care was published in 2001. <input type="checkbox"/> The delivery strategy, which sets out the action to be taken by PCTs, milestones, performance management arrangements and the underpinning programmes to support local delivery was published in 2002. <p><u>Wales</u></p> <p>NSF for diabetes Available at: www.wales.nhs.uk</p> <p>The NSF for diabetes was published in two parts:</p> <ul style="list-style-type: none"> <input type="checkbox"/> The standards and key interventions to raise the standards of diabetes care was published in 2002. <input type="checkbox"/> The delivery strategy, which sets out the action to be taken by LHBs, milestones, performance management arrangements and the underpinning programmes to support local delivery was published in 2003.

Practical Resources to Help

(NB: The table contains an example of practical resources and is not meant as a comprehensive list.)

In addition to the sources of information described in the table, the Centres for Pharmacy Postgraduate Education across the UK also offer various training materials on public health interventions:

- ◆ Centre for Pharmacy Postgraduate Education in England at www.cppe.man.ac.uk
- ◆ Northern Ireland Centre for Postgraduate Pharmaceutical Education and Training at www.nicppet.org
- ◆ Scottish Centre for Post Qualification Pharmaceutical Education at www.nes.scot.nhs.uk/pharmacy
- ◆ Welsh Centre for Post-Graduate Pharmaceutical Education at www.cf.ac.uk/phrmy/WCPPE/pindex.html

Area	Practical resources
Smoking cessation	<p>From the NPA NHS Service Development Department by e-mailing nhs.dev@npa.co.uk</p> <ul style="list-style-type: none"> □ <i>Developing smoking cessation services resource list</i>. 2003. <p>From the NPA Education and Training Department by e-mailing training@npa.co.uk</p> <ul style="list-style-type: none"> □ <i>Smoking cessation</i>. 2003. <p>From the RPSGB at www.rpsgb.org.uk</p> <ul style="list-style-type: none"> □ Guidance on the audit of smoking cessation services from the Clinical Audit Unit. □ <i>The pharmacist's role in smoking cessation</i>. RPS e-PIC references 2004. <p>From PHLink at www.pharmacyhealthlink.org.uk</p> <ul style="list-style-type: none"> □ <i>Pharmacists: can you do more to help smokers stop smoking?</i> □ <i>Sample PGD and service specification for supply of NRT through pharmacies</i>. 2001. □ <i>Improving access to smoking cessation therapies by using PGDs</i>. 2003.
CHD	<p>From the NPA NHS Service Development Department by emailing nhs.dev@npa.co.uk</p> <ul style="list-style-type: none"> □ <i>Screening resource list</i>. 2003. <p>From the Community Pharmacy Medicines Management Project at www.medicinesmanagement.org.uk</p> <ul style="list-style-type: none"> □ <i>Community pharmacy medicines management: a resource pack for community pharmacists</i>. 2003. <p>From PHLink at www.pharmacyhealthlink.org.uk</p> <ul style="list-style-type: none"> □ Public health information leaflets. <p>From the RPSGB at www.rpsgb.org.uk</p> <ul style="list-style-type: none"> □ Guidance on the audit of various aspects of CHD (e.g. aspirin, nitrate use) from the Clinical Audit Unit. □ <i>Practice guidance on blood pressure monitoring</i>. 2003.
Drug misuse	<p>From the NPA NHS Service Development Department by e-mailing nhs.dev@npa.co.uk</p> <ul style="list-style-type: none"> □ <i>Drug misuse resource list</i>. 2003. <p>From the PSNC by e-mailing psnc@psnc.org.uk</p> <ul style="list-style-type: none"> □ <i>Community pharmacy based substance misuse services resource pack</i>.

Area	Practical resources
Sexual health	<p>From the NPA NHS Service Development Department by e-mailing nhs.dev@npa.co.uk</p> <ul style="list-style-type: none"> □ <i>First wave EHC schemes – lessons learnt to date.</i> 2000. <p>From the RPSGB at www.rpsgb.org.uk</p> <ul style="list-style-type: none"> □ <i>Practice guidance on the supply of EHC as a pharmacy medicine.</i>
Mental health	<p>From the RPSGB at www.rpsgb.org.uk</p> <ul style="list-style-type: none"> □ <i>Practice guidance on the care of people with mental health problems.</i> 2000. <p>From the pharmaceutical care model schemes website in Scotland at www.show.scot.nhs.uk/pcms</p> <ul style="list-style-type: none"> □ <i>Steps framework on mental health.</i> 2003. <p>From PHLink at www.pharmacyhealthlink.org.uk</p> <ul style="list-style-type: none"> □ Public health information leaflets. <p>From the PSNC at www.psnc.org.uk</p> <ul style="list-style-type: none"> □ <i>NSF for Mental Health: a guide for community pharmacists.</i> 2003.
Accidents	<p>From the NPA NHS Service Development Department by emailing nhs.dev@npa.co.uk</p> <ul style="list-style-type: none"> □ <i>Discussion paper on preventing falls in older people.</i> 2002. □ <i>Developing community pharmacy medication review as part of a falls prevention strategy: resource list.</i> 2003. <p>From PHLink at www.pharmacyhealthlink.org.uk</p> <ul style="list-style-type: none"> □ <i>Promoting physical activity in older people. An information pack for pharmacists.</i> 2002. □ Various resources and advice on health promotion. <p>From the pharmaceutical care model schemes website in Scotland at www.show.scot.nhs.uk/pcms</p> <ul style="list-style-type: none"> □ <i>Steps framework on frail elderly.</i> 2003.
Asthma	<p>From the RPSGB at www.rpsgb.org.uk</p> <ul style="list-style-type: none"> □ <i>Practice guidance on the care of people with asthma and COPD.</i> 2000.
Diabetes	<p>From PHLink at www.pharmacyhealthlink.org.uk</p> <ul style="list-style-type: none"> □ Various resources and advice on health promotion. <p>From the PSNC at www.psnc.org.uk</p> <ul style="list-style-type: none"> □ <i>Diabetes services: a guide for community pharmacists.</i> 2002. <p>From the RPSGB at www.rpsgb.org.uk</p> <ul style="list-style-type: none"> □ <i>Practice guidance on the early identification of diabetes by community pharmacists.</i> 2001. □ <i>Practice guidance on the care of patients with diabetes by community pharmacists.</i> 2001.
Health promotion	<p>From the NPA Education and Training Department by emailing training@npa.co.uk</p> <ul style="list-style-type: none"> □ <i>Health Promoters.</i> 2003. <p>From PHLink at www.pharmacyhealthlink.org.uk</p> <ul style="list-style-type: none"> □ Various resources and advice on health promotion.

The NPA Guide on What to Consider When Establishing a Community Pharmacy-Based Screening Service

If you are thinking about setting up a screening service, you should be asking yourself the following:

1. Which general standards should be followed?

Key general standards and guidance include:

- ◆ The RPSGB *Medicines, ethics and practice* guide, which contains brief advice on diagnostic testing and health screening (available at www.rpsgb.org.uk).
- ◆ Detailed practice guidance on the testing of body fluids has also been produced by the RPSGB (available at www.rpsgb.org.uk).

2. What specific standards should be followed for a particular service?

Taking blood pressure (BP) monitoring as an example:

- ◆ Always follow nationally recognised standards, e.g. the British Hypertension Society guidelines at www.hyp.ac.uk/bhs/home.htm, which describe the current national guidance and lists recommended BP measuring devices. For example, a number of BP measurements should be taken over a period of time in order to correctly establish a patient's baseline BP.
- ◆ The RPSGB has also produced detailed practice guidance on BP monitoring (available at www.rpsgb.org.uk).

3. What are the implications of providing a screening service?

Consider the following:

- ◆ *What will be the impact on your workload?*
For example, how will you arrange patient consultations?
- ◆ *Have you got the capacity currently - or have plans in place - to change ways of working to accommodate this service?*
For example, do you have a suitable consultation area for patient counselling and for undertaking therapeutic monitoring?
- ◆ *What are the potential costs of providing the service?*
For example, pharmacist time, staff time, training, changes to premises, monitoring equipment, administration, advertising, etc.

4. What are the key clinical governance issues to consider?

Clinical governance is an essential element of any service in the NHS. It is important to be able to demonstrate the quality of a service, manage the risks within the service and to continually monitor a service to ensure that standards are maintained or to improve the service where failures or lapses are identified. The standards in part 3 'Service specifications' of *Medicines, ethics and practice* states that when providing any professional service pharmacists should ensure that the tenets of clinical governance are followed:

- ◆ That an identifiable pharmacist is accountable for all activities undertaken.
- ◆ That they and staff providing services are suitably trained and competent to perform the tasks required.
- ◆ That any necessary equipment and suitable facilities are available for the provision of the service, and that these are maintained in good order.
- ◆ That risk assessment and management procedures have been identified and are followed (*e.g. a complaints procedure in place, strict adherence to service protocols, robust patient referral systems*).
- ◆ That adequate records are maintained to enable the service to be monitored.

5. Who should be involved in planning the service?

The development of the screening service should always be discussed with the other local healthcare professionals who are also involved in patient care. These discussions should take place at an early stage to provide the best opportunity for the pharmacy service to become integrated with the other services provided locally and to let other healthcare professionals give their view on what type of pharmacy service they would find the most helpful. For example, how will the pharmacy screening service refer suitable patients back to the GP practice? Should standard written referral forms be produced? What advice is provided to patients by other local healthcare professionals (since the advice provided in the pharmacy should be consistent)?

Patients should also be involved in the planning of any service development.

6. How should the local PCO be approached to fund the service?

If the PCO is to be approached to fund a NHS pharmacy screening service then the following points should be considered:

- ◆ *What are the local priorities for the PCO?*
PCOs are priority-driven and so any proposal for a service development must state how it will help the PCO achieve its targets.
- ◆ *Is there a need for the service?*
All PCOs will expect some type of 'needs assessment' for any service development, i.e. identification of the current gaps in service provision and a proposal outlining how these gaps can be filled. Consider a baseline assessment in order to demonstrate a need for the service.
- ◆ *Is there an evidence-base for the service?*
PCO budgets are under enormous pressure and so PCOs must spend their money wisely in areas where there is already evidence of proven benefit. Therefore it is important to be able to demonstrate the published evidence base for service developments. An excellent source of information is *Evidence Relating to Community Pharmacy Involvement in Health Development: A Critical Review of the Literature 1990–2001*¹² available at www.rpsgb.org.uk

◆ *How will the service be audited?*

Any service development proposal needs to consider what outcome measures will be audited to show the success of the service.

◆ *Identify a champion in the PCO*

Find out who leads the PCO in the area in which your service proposal lies. This is likely to be the key person in the PCO to who to send your final proposal.

7. Which sources of information provide ideas for screening services?

The PSNC database of community pharmacy projects is available at www.psn.org.uk
This can be searched for examples of pharmacies already providing screening services.

Useful references can also be found on a regular basis in the pharmacy press.

Training Resources

(NB: This list contains examples of training resources and is not meant as a comprehensive list:)

Faculty of Public Health

The Faculty of Public Health provides a useful background to training in public health and has a number of useful links on its website.

Website: www.fph.org.uk

PHLink / CPPE

PHLink and CPPE provide a distance learning pack on health promotion entitled *Improving the Public's Health through Health Promotion: A Distance Learning Course for Pharmacists*.

This is available from CPPE at www.cppe.man.ac.uk

Postgraduate qualifications in Public Health

The following universities offer masters and other postgraduate programmes in public health:

Birmingham University

Masters Programme in Public Health

Website: www.publichealth.bham.ac.uk/mph

Cambridge University

The Master of Studies in Public Health

Website: www.phpc.cam.ac.uk/mst

Cardiff University

Master of Public Health

Website: www.uwcm.ac.uk/mph

Dundee University

Master of Public Health

Website: www.dundee.ac.uk

Edinburgh University

Master of Public Health

Website: www.ed.ac.uk

Glasgow University

Master of Public Health

Website: www.gla.ac.uk

Kings College, London

Master of Public Health

MSc Public Health

Postgraduate Diploma in Public Health

Website: www.kcl.ac.uk/kis/schools/life_sciences/life_sci/msc/msc_pub_health.html

London School of Hygiene & Tropical Medicine

MSc Public Health

Website: www.lshtm.ac.uk/prospectus/masters/msph.html

Medical College of London

Masters in Public Health

Website: www.mcl-edu.co.uk

Oxford Brookes University

MSc/Postgraduate Diploma in Public Health

Website: www.brookes.ac.uk/courses/currentpg/msc_pgdipl_publichealth.html

GLOSSARY

Clinical governance A framework through which NHS organisations are accountable for continuously improving the quality of their services.

Disease prevention Disease prevention covers measures not only to prevent the initial occurrence of disease (primary prevention), such as risk factor reduction, but also to arrest the progress of existing disease and reduce its consequences (secondary prevention).

Epidemiology The study of the distribution and determinants of health states or events in specified populations and the application of this study to the control of health problems. Epidemiological information, particularly defining individual, population and/or physical environmental risks is at the core of public health and helps to define disease prevention activities.

Health Defined by the World Health Organization constitution of 1948 as ‘a state of complete physical, social and mental well-being, and not merely the absence of disease or infirmity’. It is a resource that permits people to lead an individually, socially and economically productive life.

Health determinants The range of personal, social, economic and environmental factors that determine the health status of individuals or populations.

Health development The process of continuous, progressive improvement of the health status of individuals and groups in a population. Health promotion is an essential element of health development.

Health education Comprises consciously constructed opportunities for learning involving some form of communication designed to improve knowledge of health and development of life skills, which are conducive to individual and community health. It is concerned not only with communication of information, but also with fostering the motivation, skills and confidence necessary to take action to improve health. Health education should be distinguished from health promotion. The latter term covers action directed towards alteration of the social, economic and political environment.

Health gain A way to express improved health outcomes. It can be used to reflect the relative advantage of one form of health intervention over another in producing the greatest health gain.

Health goal Summarises the health outcomes, which, in the light of existing knowledge and resources, a country or community might hope to achieve in a defined time period. Health goals are statements of intent and aspiration.

Health impact assessment Analyses the impact on health of a decision the prime objective of which is something other than health. Examples might include the traffic impact of a new development or the effects of a Single Regeneration Budget on health.

Health inequalities Differences between the health of sections of the population that occur as a consequence of differences in social and educational opportunities, financial resources, housing conditions, nutrition, work patterns and conditions and unequal access to health services.

Health needs assessment Describes health problems in a population and differences within and between different groups. The aim is to determine health priorities and unmet needs. It should identify where people are able to benefit either from health service care or from wider social and environmental change, and balance any potential change against clinical, ethical and economic considerations. In other words what should be done, what can be done and what can be afforded.

Health outcomes A change in the health status of an individual, group or population which is attributable to a planned intervention or series of interventions, regardless of whether such intervention was intended to change health status.

Health promotion Defined by the *Ottawa Charter for Health Promotion* as ‘the process of enabling people to increase control over, and to improve their health’. Not only does it embrace actions directed at strengthening skills and capabilities of individuals, but also action directed towards changing social, environmental and economic conditions so as to alleviate their impact on public health and individual health. It is directed at creating the conditions which offer a chance of there being a relationship between the efforts of individuals and groups and subsequent health outcomes.

Health target For a given population, health targets state the amount of change that could be reasonably expected within a defined time period. Targets are generally based on specific and measurable changes in health outcomes.

Long-term service agreements Agreements between PCTs and NHS Trusts on the services to be provided for a local population. These will replace the annual contracts of the internal market and cover a minimum of three years in order to provide greater stability.

National Service Frameworks (NSF) Evidence-based NSFs set out what patients can expect to receive from the NHS in major care areas or disease groups.

Public health The science and art of promoting health, preventing disease and prolonging life through the organised efforts of society. It is a social and political concept aimed at improving health, prolonging life and improving the quality of life among whole populations through health promotion, disease prevention and other forms of health intervention. Supporting healthy lifestyles and creating supportive environments for health are crucial parts of creating, maintaining and protecting public health.

Quality of life Defined as individuals’ perceptions of their position in life in the context of the culture and value system where they live, and in relation to their goals, expectations, standards and concerns. It incorporates physical health, psychological state, level of independence, social relationships and personal beliefs.

Risk factor A social, economic or biological status, behaviour or environment, which is associated with or a cause of increased susceptibility to a specific disease, ill health or injury. Risk factors, once identified, can be a focus for health promotion strategies and activities.

Social capital Consists of the stock of active connections among people: the trust, mutual understanding, and shared values and behaviours that bind the members of human networks and communities and make co-operative action possible.

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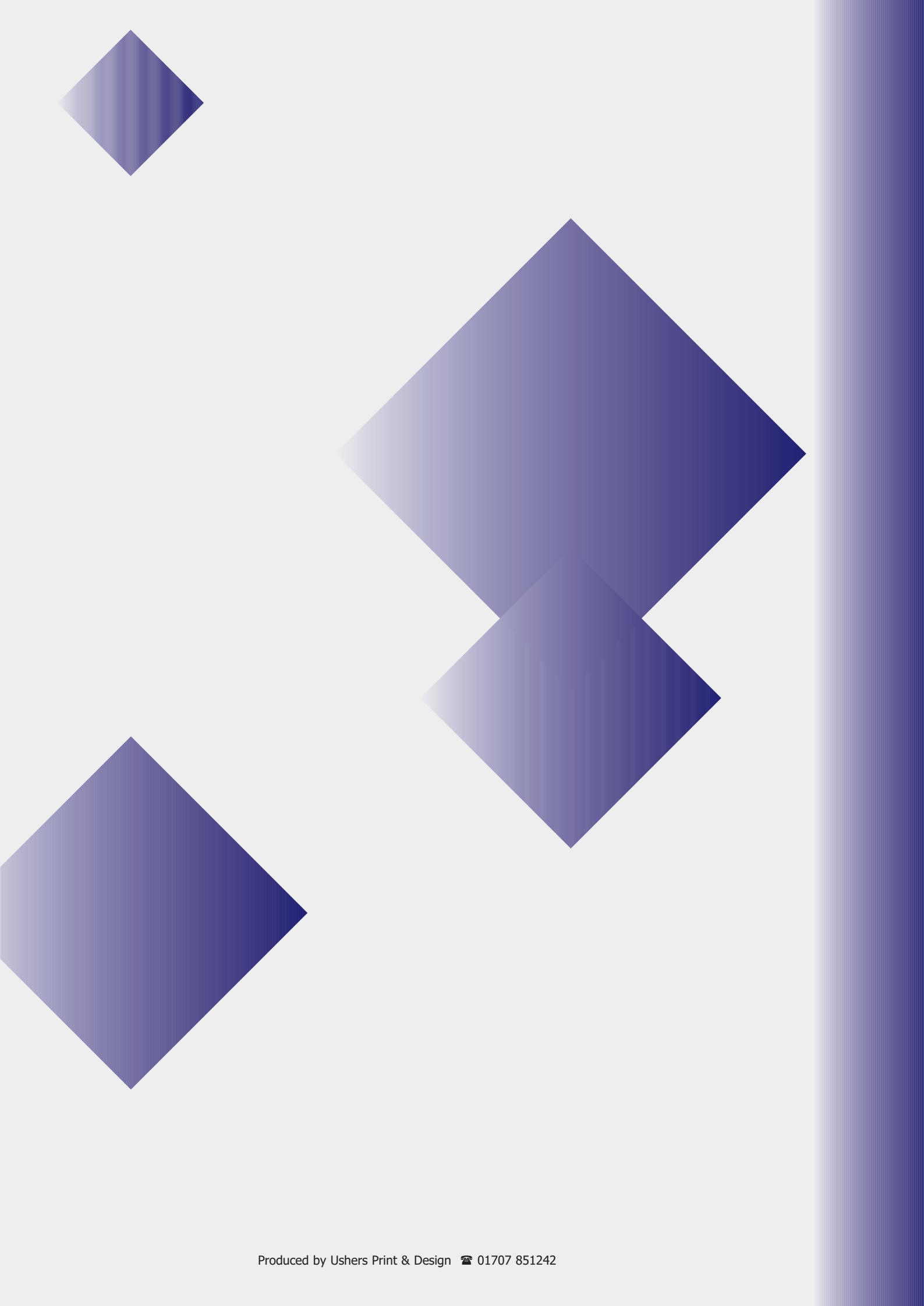
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Appendix 4 Survey form and Responses

Pharmacy/Organisation Expectations

Organisation:

Spokesperson and position:

What does your organisation consider is the role of pharmacy?

What does your organisation consider is the role of pharmacy in relation to patients with heart disease?

What does your organisation perceive is the role of pharmacy in health promotion?

What sort of general health advice should pharmacists offer?

Are there any potential roles for pharmacy in relation to your organisation's constituents that are not undertaken now?

Does your organisation think pharmacies should conduct the following activities or provide the following services of screening, monitoring and consequent referral? (please place 'x' in the relevant cell).

	Yes	No	N/A	No opinion	Specific Comments
Anticoagulation					
Arthritis					
Asthma					
Bone Density Testing					
Depression					
Falls prevention					
Heart Health					
Hyperlipidaemia/Cholesterol					
Hypertension					
Immunisation					
Nutrition					
Osteoporosis					
Pain management					

Smoking Cessation					
Weight Management					
Wellness Activities					
Wound Care					

Any other comments?

Reply Cancer Council:

At 04:03 PM 5/05/2005, Andrew Ellerman wrote:

Dear Prof Peterson

Your request to Prof Alan Coates has been passed to me to respond in relation to community pharmacies and tobacco cessation, since I chair the national Tobacco Issues Committee of TCCA.

Smoking cessation is an excellent opportunity for health promotion via pharmacies. Pharmacies are the key outlet for NRT products, and inquiries by smokers for purchase or advice provide a ready made opportunity for intervention.

In relation to the effectiveness of tobacco control generally, there is strong evidence that Australian activities such as the National Tobacco Campaign are both effective and cost-effective. eg see Ch 7 of Australia's National Tobacco Campaign Evaluation Report Two (Cwlth Dept Health & Aged Care 2000) and Applied Economics (2003) Returns on Investment in Public Health, a report for Cwlth Dept of Health and Ageing. These are more focused on broad population strategies, so do not necessarily translate to the pharmacy setting.

Most of the various state Quit campaigns have some degree of collaboration with pharmacies, especially around peak campaign periods such as New Year or World No Tobacco Day. Quit Victoria and Quit SA have both done more intensive work, and perhaps the best avenues for you to gain further information would be to contact the key people in each of those organisations - David Edwards in SA (08 8291 4146) and Suzie Stillman in Victoria (03 9635 5526). I've copied them both in on this response. David is doing research on smoking cessation and pharmacies for a Guild-funded project and has recently completed the final report for the project.

thank you for your inquiry

Dr Andrew Ellerman
Chair, Tobacco Issues Committee
The Cancer Council Australia

Reply Quit Victoria:

Dear Greg,

I'd be very pleased for you to contact me re the work Quit Victoria has been doing in the area of pharmacies over the last years.

I've attached a brief summary of the work we have been involved with. Stavroula Zandes is our program coordinator and has been responsible for the Quit Vic's work in the pharmacy setting for the last 6 years.

all the best,

Suzie

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-----Original Message-----

Quit Victoria

Pharmacy Program

Quit's Pharmacy Program links in strongly with peak pharmacy professional associations and organisations. It encourages participation at the local level by encouraging pharmacists and their staff to advise patients who smoke to quit and to give their patients information about the support available to help them. For example mailouts encourage pharmacies to participate during key times of the year where smokers are more likely to think about their smoking and decide to quit, for example the New Year period and around World No Tobacco Day (WNTD) on the 31 May.

Partnerships

Partnerships have been developed with pharmaceutical organisations at the national and state level, such as the Pharmaceutical Society of Australia (and Victoria), the Pharmacy Guild of Victoria, Amcal Chemists and SIGMA

Examples:

- The Pharmacy Guild of Australia's pilot smoking cessation project, with Quit's coordinator contributing comments to the National Training Course for Pharmacy Assistants and to the development of the on-line training component for pharmacy assistants. The Guild also approached Quit Vic to develop two pamphlets, one on quitting smoking and the other on nicotine replacement therapy as well as develop the text for the smoking cessation display boards, which will be placed in the trial pharmacies.
- Quit Victoria has worked with the Pharmaceutical Society of Australia since 1997 in their development of the Smoking Cessation Training Package. Once the pharmacist or the pharmacy assistant participates in the Specialty Pharmacy Practice 'distant learning' training program, the pharmacy is accredited in the area of smoking cessation. Quit contributed significantly to the training materials.
- Since 2000, Quit has worked with Amcal Chemists in their development of a smoking cessation program for their pharmacies. In collaboration with Quit, Amcal produced a "Stop Smoking for Life" booklet which covered information on smoking and how to quit, as well as information on the Quitline, product recommendations, ways to manage stress and how to increase your wellbeing.
- Quit was approached by the National Prescribing Service (NPS) to contribute advice and information to its Smoking Cessation Self-Audit.
- The Pharmaceutical Society of Australia (PSA) approached Quit Victoria to sponsor their Smoking Fact Card. This is a national initiative and a great opportunity to promote the Quitline to 2,000 pharmacies across Australia, and Quit Vic coordinated this on behalf all state and territory Quit groups

Training

Since 2000, Quit has provided a free in-store smoking cessation training session for pharmacists and their assistants. Hundreds of pharmacy staff have been trained using this model. In 2002 a telephone survey conducted one month after the training was used to gauge the effectiveness of the session and to assess staff's confidence and skills.

Resources

- Two posters to provide a prompt for staff: one on smoking cessation prompts by using the 5As framework (Ask, Advise, Assess, Assist and Ask again), and the other on opportunities to raise the smoking issue.
- Handout on Common Nicotine Replacement Therapy Questions and Answers.

Reply: National Stroke Foundation

Pharmacy/Organisation Expectations

Organisation: Stroke Foundation

Spokesperson and position: Dr. E. Lalor, CEO

What does your organisation consider is the role of pharmacy?

Providing information that may be distributed to consumers.

Development of evidence based guidelines that include medication dose for stroke prevention.

Providing education and information about relevant public health campaigns.

Working in partnership to keep people strokesafe.

What does your organisation consider is the role of pharmacy in relation to patients with stroke or at risk of stroke?

A source of information and education for consumers and health professionals

What does your organisation perceive is the role of pharmacy in health promotion?

A partner in distributing educational and information resources and programs.

Sources of active encouragement at an individual level in reducing stroke risk factors.

What sort of general health advice should pharmacists offer?

In relation to stroke, the information that is evidence based and consumer friendly. Most of it is contained in our strokesafe material

Are there any potential roles for pharmacy in relation to your organisation's constituents that are not undertaken now?

We would like to see a greater role for pharmacy in increasing dissemination of the strokesafe message

Does your organisation think pharmacies should conduct the following activities or provide the following services of screening, monitoring and consequent referral? (please place 'x' in the relevant cell).

	Yes	No	N/A	No opinion	Specific Comments
Anticoagulation				X	
Arthritis			X		
Asthma			X		
Bone Density Testing			X		
Depression			X		
Falls prevention			X		
Heart Health			X		
Hyperlipidaemia/Cholesterol			X		
Hypertension	X				Screening through pharmacy with appropriate referral could increase identification of those in the community with HT
Immunisation			X		
Nutrition			X		
Osteoporosis			X		
Pain management			X		
Smoking Cessation	X				
Weight Management			X		
Wellness Activities			X		
Wound Care			X		

Any other comments?

Reply beyondblue

Pharmacy/Organisation Expectations

Organisation: *beyondblue: the national depression initiative*

Spokesperson and position: Leonie Young, CEO

What does your organisation consider is the role of pharmacy?

Generally, as front line access point for people, patients in querying their healthcare needs and accessing medications, treatments, and responding to the self-help seekers;

Specifically, to provide and dispense medications, pharmaceuticals safely, as prescribed and advise, monitor and support people, patients and their carers in quality use of medicines.

- To be accessible, to dispense medications as prescribed, to advise on pharmaceutical products and complementary medicines to address illness and symptoms of ill health;
- To provide information on medications dispensed, side effects, interactions with other drugs and options, generic brands available.
- To provide readily available printed materials on different illnesses and conditions
- To be an information/advisory source for the community on illness, disease, and good health

What does your organisation consider is the role of pharmacy in relation to patients with depression?

- To dispense medications and other pharmaceuticals, including complementary medicines as prescribed or relevant to treat depression, anxiety and related disorders;

to be an accessible and up to date information source for customers regarding the medication, its contra indications, and side effects;

- To provide information sheets on depression; signs, symptoms, treatment options and relapse prevention;
- To provide written, current information on antidepressants, what to expect when taking them – side effects, how long they take to work, the importance of taking them as directed and not stopping them suddenly.
- To be fully informed and aware of the popularity of complementary and self-help therapies and to highlight to clients the issues around interaction with medications and optional use, including vitamin supplements
- Pharmacists with regular customers are often in the position to detect changes in a person's health more than GPs due to seeing their customers more frequently, and may be an encouraging health advisor

What does your organisation perceive is the role of pharmacy in health promotion?

- To take a lead role in developing current, quality information on health and illness prevention, treatment and management;
- To be able to provide information about good health, quality life style interventions, ie. Diet, exercise, vitamin, education;
- To promote signs, symptoms, interventions and preventions, early warning signs – such as the depression check list.
- To provide quality information and access to range of products
- Pharmacists are often in a key position to monitor a person's progress and to detect changes especially if the person is becoming unwell and/or not responding to the medication. They are in the position to encourage people to adhere to their treatment and to access community supports and programs.
- They are able to raise community awareness of depression, anxiety and related substance-use disorders by displays and information sheets.
- Pharmacies may offer information about prevention of depression i.e. looking after mental health through exercise, proper nutrition, relaxation etc.

What sort of general health advice should pharmacists offer?

- Information on all aspects of achieving and maintaining good health and wellness; general advice areas of sleep management, nutrition, analgesics, potential health problems, interactions of medications, benefits of exercise, community supports, allied health practitioners, natural therapies.

Are there any potential roles for pharmacy in relation to your organisation's constituents that are not undertaken now?

- Yes, substantial untapped potential for pharmacies to improve/coordinate provision of quality information on depression, anxiety and related disorders
- To act as front line info dissemination on current treatments and medications
- Provide fact sheet and information source for relevant and up to date info on depression; fact sheets for adults and young people could be made available – information about depression, self help and support to manage the illness, community support groups, what works, support for families and carers.
- Through displays pharmacies may help reduce the stigma associated with depression – may help to normalise depression – its like any other illness - and assist people to be informed of the facts related to their medication and stay on their medication.
- An interactive check list may be made available on pharmacy computer touchscreens or paper versions, using the check list *beyondblue* now produces.
- Preventative information could be made available to assist with early interventions with depression, anxiety and related substance-use disorders – exercise, nutrition, sleep management. Vitamin supplements etc.
- Bb depression info Videos – or video clips - may be able to be viewed in the pharmacy
- Pharmacists could provide personal medication records for people to review and update with new medications, would assist with the management of medication, particularly where people are older, and/or confused about a number of different medications they are taking, or simply so unwell that they are unable to coordinate the management of their medication unless it is written down clearly. This may also be beneficial for any family members or carers.

Does your organisation think pharmacies should conduct the following activities or provide the following services of screening, monitoring and consequent referral? (please place 'x' in the relevant cell).

	Yes	No	N/A	No opinion	Specific Comments
Anticoagulation	X				
Arthritis	X				
Asthma	X				
Bone Density Testing	X				
Depression	X				
Falls prevention	X				
Heart Health	X				
Hyperlipidaemia/Cholesterol	X				
Hypertension	X				
Immunisation	X				Pharmacy practice nurses could be employed for this as trialled in Australia with child health nurses weighing/monitoring progress in new borns in pharmacies
Nutrition	X				
Osteoporosis	X				
Pain management	X				
Smoking Cessation	X				
Weight Management	X				
Wellness Activities	X				
Wound Care	x				

Any other comments?

Beyondblue welcomes closer participation and partnerships with pharmacies, key to addressing depression, anxiety and related disorders in Australia through primary care approach; general practice, allied health and pharmacies front line for prevention, early intervention, identification and management of the illness.