6

Introduction to medicines management

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Introduction

This chapter introduces the concept of medicines management and the role of the community pharmacist. The chapter begins by describing what medicines management is, why it is needed, the different types of medicines management, and how these are achieved. The chapter closes with a description of the medicines management services that community pharmacists in the UK can provide.

Many of the principles of medicines management described in this chapter also apply to hospital pharmacists. However, the specific roles can differ markedly between hospital and community pharmacists; a description of these individual roles is beyond the scope of this chapter.

What is medicines management?

The objective of medicines management is to provide the best possible outcome for patients at the lowest possible cost. Medicines management is not aimed solely at cost reduction, but at providing the most cost-effective care for the best possible patient outcomes. The term medicines management incorporates all aspects of medicines usage by patients and health professionals, including the ways in which medicines are selected, procured, delivered, prescribed, administered, monitored and reviewed. Medicines management has been given a variety of definitions (see Box 6.1), the most succinct of which is, 'the systematic provision of medicines therapy through a partnership effort between patients and professionals to deliver best

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Box 6.1 Definitions of medicines management

'Medicines management . . . encompasses the entire way that medicines are selected, procured, delivered, prescribed, administered and reviewed to optimise the contribution that medicines make to producing informed and desired outcomes of patient care.' (Audit Commission, 2001)

'Medicines management encompasses a range of activities intended to improve the way that medicines are used, both by patients and by the NHS. Medicines management services are processes based on patient need that are used to design, implement, deliver and monitor patient-focused care. They can include all aspects of the supply and use of medicines, from an individual medication review to a health promotion programme.' (NPC, 2002)

'[Medicines management is a practice that] seeks to maximise health through the optimal use of medicines. It encompasses all aspects of medicines use, from the prescribing of medicines through the ways in which medicines are taken or not taken by patients.' (Lowe, 2001)

'[Medicines management is] the systematic provision of medicines therapy through a partnership of effort between patients and professionals to deliver best patient outcome at minimised cost.' (Tweedie & Jones, 2001)

'[Medicines management is] a pooling of medical, pharmaceutical, and patient knowledge for the benefit of the patient, accessing other professionals' expertise where appropriate.' (Tweedie & Jones, 2001)

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patient outcome at minimised cost' (Tweedie and Jones, 2001). (Chapter 14 discusses patients and professionals working in partnership.)

Development of medicines management

For many years doctors have been prescribing medicines with the intention of providing patient benefit. Medicines management has not been a focus in the past, so why has there been an increasing emphasis on this area in recent years?

The majority of health professionals and patients recognise that all medicines can cause adverse drug reactions (ADRs). In many cases, these reactions are a minor inconvenience to patients. However, ADRs can result in serious patient injury, leading to hospital admission, disability or even death. These serious ADRs have been studied for many years but, until recently, there has been less interest in whether ADRs could be avoided or the effects on patients lessened. A focus on the preventability of ADRs became apparent in the 1980s with the publication of a number of studies describing preventable drug-related admissions to hospital (Trunet *et al.*, 1980; Bigby *et al.*, 1987; Italian Group on Intensive Care Evaluation, 1987). In the 1990s the patient safety movement began to gain momentum, with an in-depth analysis of patients' injuries caused by general medical care in US hospitals (Leape *et al.*, 1995). Enthusiasm for maximising the safety, efficacy and quality of patient care reached government level in the UK in 2000 with the publication of the report *An organisation with a memory* (Department of Health, 2000a), which reviewed the literature on medical error and was instrumental in beginning to develop a safety culture in the National Health Service (NHS) (see Box 6.2). In addition, *An organisation with a memory* led to a number of reports highlighting the importance of medicines management and the roles that pharmacists and other health professionals could play (see Boxes 6.3 and 6.4) (Audit Commission, 2001; Smith, 2004). *Pharmacy in the Future* set a deadline of 2004 for the implementation of medicines management schemes in primary care to help 'reduce the amount of illness caused by medicines not being used correctly, and cut waste' (see Box 2.3, page 13) (Department of Health, 2000b).

Box 6.2   An organisation with a memory

An organisation with a memory was a report published by the Department of Health in 2000, in response to a growing recognition of the cost of adverse events within the NHS. It set out:

- what was known about the number and types of adverse events experienced by patients
- where there were holes in our knowledge about the frequency and causes of adverse events
- how other industries, such as aviation and nuclear, have systems in place to learn from mistakes (and therefore help avoid them happening again)
- the role of organisational structures in events leading up to errors, in addition to the role of human errors and the factors which can contribute to these
- the tradition of a 'blame-orientated approach' to individuals when errors occur, whilst advocating

an open and fair approach to individuals which should encourage staff to report adverse events and errors that occur, without fear of retribution
- how existing systems for reporting events are fragmented and incomplete
- a proposal for:

  - a unified national adverse event reporting system allowing analysis of events to help avoid problems in the future
  - a more open culture where errors can be discussed without fear of retribution
  - ensuring that, where lessons are identified, changes are put into place nationally.

The full report can be accessed via www.dh.gov.uk/ en/Publicationsandstatistics/Publications/ PublicationsPolicyAndGuidance/DH_4065083

Box 6.3   A spoonful of sugar

In 2001, the Audit Commission published the report *A spoonful of sugar – medicines management in NHS hospitals* to emphasise the importance of medicines management to managers within National Health Service (NHS) hospitals. The report:

- introduces the concept of medicines management and highlights the obstacles to improving the provision of medicines management
- describes the cost pressures associated with providing medicines for patients and the reasons why medicines management systems should be reviewed
- sets out the medicines management roles of different groups within hospitals, such as hospital managers, drugs and therapeutics

committees, risk managers, clinicians and pharmacists
- highlights ways in which risks can be reduced using computer technology and clinical pharmacists, as well as different ways of providing medicines management
- outlines some of the barriers to an increased role for hospital clinical pharmacists in medicines management, and how these can be overcome
- sets out action plans for managers within NHS hospitals and professional associations in order to improve the provision of medicines management services.

The full report can be accessed via the Audit Commission website (www.audit-commission.gov.uk).

Box 6.4   *Building a safer NHS for patients: improving medication safety*

Following the report *An organisation with a memory* (see Box 6.2), the Department of Health published a series of reports entitled *Building a safer NHS for patients*. One of these – *Improving medication safety* (Smith, 2004) – focused specifically on medication safety. This report described the:

- frequency and causes of medication errors
- role of the National Patient Safety Agency in preventing medication errors
- risks of errors at various stages in the medication use process
- particular risks to patients at high risk of medication errors, such as patients with allergies to medications, seriously ill patients, and children

- risks associated with specific groups of medications
- ways in which medication errors can be avoided through better use of information technology, medication packaging and different ways of working.

The full report can be accessed via www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4071443

National Patient Safety Agency website: www.npsa.nhs.uk

Consequences of poor medicines management

The consequences of poor medicines management include medication errors, patient injury and wastage of NHS money. Medication errors can occur at all stages of the medicines management process (prescribing, dispensing, administering and monitoring). The majority of errors will be identified before the medicines reach patients (near misses) or will result in no harm to patients. However, a significant minority of medication errors (usually those described as serious errors) can result in patient harm (preventable drug-related morbidity; PDRM). The stages of the medicines management process at which errors can occur are described in detail below. The frequency of errors at each stage of the medicines management process is given in Table 6.1.

Table 6.1   Frequency of medication management errors

Error type	Patient group	Frequency of error	Reference
Prescribing error	Children in hospital	0.45–30 errors per 100 prescriptions	Ghaleb *et al.*, 2006
	Adults in hospital	1.5 errors per 100 prescriptions	Dean *et al.*, 2002
	All patients in primary care	0.2–1.9% of prescriptions dispensed in community pharmacy	Chen *et al.*, 2005
Dispensing error	Patients presenting prescriptions to a community pharmacy	22 per 10 000 items dispensed (near misses) 4 per 10 000 items dispensed (errors)	Ashcroft *et al.*, 2005
Administration error	Patients administering their own medication in the community	50% of patients with chronic conditions are poorly adherent	WHO, 2003
	All patients in hospital	15% of patients administered oral medications by nurses	Tissot *et al.*, 2003
		49% of intravenous medication doses administered; one-third of errors at least moderately serious	Taxis and Barber, 2003

Prescribing errors

Prescribing errors can occur when selecting which drug to prescribe, or during the act of writing or computer-generating a prescription. These errors are more frequent in hospitals than in primary care, but still represent a significant risk to patients in the community.

Dispensing errors

Dispensing errors can occur when a medication is physically selected, labelled or handed to the patient. Near misses and dispensing errors are relatively infrequent, but can have important consequences for patients and pharmacists (see Chapter 15). Dispensing errors can cause permanent physical injury or death to patients, and are still considered a criminal offence under the Medicines Act.

Administration errors

Administration errors can occur when a medication is taken by a patient or given to a patient by a carer or health professional. An administration error that results from a patient not taking their medication as prescribed is described as an adherence problem (see Chapter 14). Administration errors can occur when medicines are selected or prepared incorrectly, or administered via the wrong route (see Chapter 16).

Monitoring errors

Both patients and health professionals can make monitoring errors. Monitoring errors can occur when a patient does not recognise that the condition being treated is worsening, or does not act in an appropriate way, such as seeking help from a health professional or adjusting their medication according to a pre-agreed plan. For example, patients with diabetes will find their blood glucose goes up if they have an infection and should therefore be aware of the 'sick day rules', which recommend increasing their insulin dose in response to this. Monitoring errors can also occur when a health professional does not identify a deterioration in a patient's condition, or when they do not perform necessary tests when starting or continuing medication. Tests that health professionals might be expected to perform include blood tests, urine tests and measurement of blood pressure and pulse rate. These can all be used to monitor the effectiveness of medication and to identify potential adverse effects.

Preventable drug-related injuries

Serious medication errors can result in PDRM, which is believed to account for about 4% of admissions to hospital (Howard *et al.*, 2007). Older patients (over 65 years of age) are twice as likely to experience a preventable drug-related admission (Winterstein *et al.*, 2002). Nearly 2% of patients will experience a PDRM during hospital admission (Kanjanarat *et al.*, 2003); in primary care in the USA, 1.5–3% of patients in their own homes, and around 10% of patients in nursing homes, will experience a PDRM (Gurwitz *et al.*, 2000, 2003; Gandhi *et al.*, 2003).

These PDRMs represent a significant burden to patients, health professionals and the NHS. Medication errors are thought to cost the NHS about £500 million per year in extra days spent in hospital. In addition, unused medicines are estimated to waste more than £100 million per year of NHS money (Department of Health, 2000b; Audit Commission, 2001). Improvements to medicines management services in both primary and secondary care settings are an important strategy to help prevent PDRM.

Types of medicines management

Medicines management encompasses a broad range of services that range in focus from individual patients to the provision of care to the population as a whole. Five categories of medicines management services have been identified by the National Prescribing Centre (NPC) and National Primary Care Research & Development Centre (NPCRDC; 2002b):

- clinical medicines management
- systems and processes
- public health
- patients and their medicines
- interface medicines management.

The first four categories are of particular relevance to community pharmacy and are described in more detail below.

Clinical medicines management

Clinical medicines management services focus on the patient and 'the assessment, monitoring and review of prescribing for individual patients' (NPC and NPCRDC, 2002a). All health professionals involved in providing medicines to patients, including pharmacists, have a responsibility to use their clinical and professional skills to provide clinical medicines management services.

In primary care many patients receive medication via repeat prescriptions, which are authorised by the prescriber for a fixed number of prescriptions or a fixed time period (often 6 or 12 months). During this time, the patient requests further prescriptions from the receptionist, rather than making an appointment with their general practitioner (GP). Repeat prescriptions are not checked for their appropriateness each time they are issued. Instead, the prescriptions should be carefully assessed at the end of the repeat prescribing period, a process known as medication review (see Box 6.5). Medication reviews can also be undertaken with patients who are considered to be at a high risk of medication problems, including those taking specific high-risk medications, patients taking more than four regular repeat medications, and patients where poor adherence is suspected (Department of Health, 2001).

Historically, medication reviews have not happened for a variety of reasons, including GPs' time constraints. Zermansky *et al.* (2002) found that GPs performed medication reviews with 56–71% of patients aged 65 years or older on at least one repeat prescription. Guidelines for medication reviews recommend that all patients aged 65 years or older should have an annual medication review, whilst those taking four or more medications should have a medication review every 6 months (Department of Health, 2001). GP practices are now paid for providing medication reviews to patients through the quality and outcomes framework (see Box 2.12) and community pharmacies can be paid for performing medication reviews as an enhanced service in the new community Pharmacy Contract. Medication reviews for patients on repeat prescriptions are an ideal opportunity for pharmacists to contribute to medicines management in primary care. Studies have confirmed that pharmacist-led medication reviews reduce the cost of prescribing, and improve patient adherence to medication (Beney *et al.*, 2000; Holland *et al.*, 2006).

Other clinical medicines management services could include specialist disease management clinics and clinical pharmacy interventions in nursing homes, community hospitals and patients' own homes. Pharmacist-led specialist disease management clinics can improve patients' clinical outcomes, but do not seem to improve the quality of patients' lives (Beney *et al.*, 2000). In addition, the Community Pharmacy Medicines Management Project Evaluation Team (2007) found that although patient satisfaction was increased, community pharmacists had no impact on the appropriateness of drugs prescribed for patients with cardiovascular disease, and the pharmacist-led service cost more than a GP-led service. Thus, the value of any service provided requires serious consideration in terms of patient benefit and cost to the NHS.

Systems and processes

In addition to direct clinical management of patients, some medicines management services focus on the systems and processes of work involved in supplying medicines to patients. The safety and efficiency of medicines management can be improved by changing systems. These medicines management services can include developing protocols for repeat prescribing systems or developing integrated care pathways (flow diagrams that give guidance on how to

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Box 6.5 Medication review

Medication review has been defined as, 'a structured critical examination of a patient's medicines, with the objective of reaching an agreement with the patient about treatment, optimising the impact of medicines, minimising the number of medication-related problems and reducing waste' (Shaw *et al.*, 2002). Four different levels of medication review have been identified.

- **Level 0 – *ad hoc*:** An unstructured opportunistic review of a patient's medication in response to a question or problem. *Ad hoc* reviews are not considered to be true medication reviews because they are unlikely to address all of a patient's medication problems.
- **Level 1 – prescription review:** A review of a patient's medication without access to the clinical medical records (see Box 6.7). The patient may not necessarily be present. Prescription reviews can be useful for brand-to-generic switches, deciding whether to continue or discontinue a medicine, and optimising pack sizes. Prescription reviews can also be useful for assessing a patient's medication between face-to-face clinical medication reviews.
- **Level 2 – treatment review:** A review of a patient's medication, often without the patient present, where the reviewer has access to the clinical records. Reviews can cover a patient's whole medication list, or focus on single agents (e.g. lithium, a mood stabiliser used in severe depression, mania and related disorders), or therapeutic groups of agents (e.g.

antihypertensives). Treatment reviews can be used to modify medication doses or to identify patients who need monitoring. Treatment reviews can be problematic because they rely on the treatment record, not the patient's account of what they take, and changes to medication can be made without the patient's agreement. This is not congruent with the concordance model of care (see Chapter 15) and can cause patients to become confused about their medication. This increases the risk of preventable drug-related morbidity through patients mistakenly taking medications incorrectly.
- **Level 3 – clinical medication review (CMR):** A face-to-face review of a patient's medication and clinical condition. A CMR includes a patient's entire medication history (including non-prescription medicines) and takes account of what the patient actually takes and information contained in the medical record. During a CMR, a patient's views and beliefs about their medicines are accounted for and any changes to treatment are agreed with the patient. A CMR facilitates evaluation of the therapeutic value of each drug, identification of untreated conditions, and a concordant discussion about a patient's treatment (see Chapter 15). However, CMRs use a lot of health professional resources (and are therefore more expensive than other reviews). CMRs are considered to be the gold standard, but lower level reviews remain useful for the reasons detailed above.

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manage patients with specific conditions). In addition, comparing current practice at work with these guidelines or standards (a process known as audit) can help to identify medicines management systems or processes that could be improved (see Chapter 15).

Public health

In addition to focusing medicines management services at individual patients, it is important to target services to meet the needs of the local population – described as public health. Public health services can be targeted at individual members of the public at the point of care, or as part of an educational role within NHS organisations (PSNC, 2004). Medicines management services with a public health focus are shown in Box 6.6. Two of these services are described in more detail below.

Smoking cessation

Community pharmacists can train to provide a successful and cost-effective smoking cessation

Box 6.6 Public health medicines management services

- Smoking cessation
- Coronary heart disease
- Obesity and weight reduction
- Drug misuse (e.g. supervised methadone administration, and needle exchange programmes)
- Sexual health (e.g. provision of emergency hormonal contraception)
- Folic acid and pregnancy
- Asthma (e.g. providing an asthma clinic in conjunction with local GP practices)
- Diabetes (e.g. patient education and monitoring programmes)
- Immunisation (e.g. administering influenza vaccination)
- Head lice (e.g. recommending appropriate treatments such as wet combing)
- Oral health (e.g. encouraging the use of sugar-free medicines in children)

service. Studies in the UK have found that smokers are 2–5-times more likely to quit smoking when they participate in a smoking cessation service led by a community pharmacist (Anderson *et al.*, 2003a).

Influenza vaccination

Community pharmacy patient medication records (PMRs) (see also 'Identifying patients at risk of adverse effects', page 64) can be used to identify patients who might benefit from influenza vaccination (Anderson *et al.*, 2003b). Pharmacists based in supermarket pharmacies in the USA have successfully provided immunisations to adults without adverse effects (Anderson *et al.*, 2003a). A similar service is provided in Scotland where community pharmacists are able to administer influenza vaccination to adults aged 65 years or over as part of a patient group direction: 888 patients were vaccinated through this scheme in 2004 (Hind & Downie, 2006).

Patients and their medicines

As part of the integration of health and social care in the current NHS system (see Chapter 2), some medicines management services also focus on the health and social care aspects of patients and their medicines. Community pharmacies can provide a number of services in this category, including:

- patient education
- medication reviews
- repeat dispensing
- home delivery of medication.

Patient education about medicines should be an integral part of the dispensing process. Increasing patient awareness of how to take their medicines, how to manage potential adverse effects, and how to incorporate their medicine regimens into their daily lives can all be included in patient counselling. In addition, accredited pharmacists working in accredited premises can perform medicines use reviews (see Box 6.7). Domiciliary medication reviews (visiting patients at home or in care homes) can further integrate medicines management with social care. Domiciliary visits provide an ideal opportunity to discuss with patients how they manage their medicines and any problems they may have experienced. A study of older patients in Leeds found that those who had received a domiciliary medication review were more likely to know why they took their medication (Lowe *et al.*, 2000). In addition, patients' medication regimens were simplified and reasons for poor adherence were identified as a result of the medication review.

Ways in which medicines management is achieved

Good medicines management requires all health professionals to develop new skills. In particular, community pharmacists need to develop good working relationships with doctors and patients in order to improve communication with these groups. Good communication is important for a number of reasons.

Box 6.7   Medicines use reviews

Under the new Pharmacy Contract, medicines use reviews (MURs) are an advanced service that can be performed by accredited pharmacists working in accredited community pharmacies. To achieve accreditation, pharmacists must undertake a competency assessment which ensures that they achieve the standards of practice stated in the national competency framework. Training and assessment is provided by various universities (see www.psnc.org.uk for further information). Pharmacy premises require a clearly signposted private consultation area where the pharmacist and patient can sit down and talk at normal speaking volumes without fear of being overheard. Owners of premises complete a self-certification form stating that their premises meet these criteria. This statement is validated by the primary care trust that contracts the service.

MURs provide an opportunity for patients to talk to their community pharmacist about the medicines they are taking, what the medicines do, how well they work, and how to get the most out of them (Department of Health, 2005). In addition, MURs provide the community pharmacist with an opportunity to intervene on prescriptions where they identify problems (Bellingham, 2004). MURs are not a clinical prescription review, and pharmacists do not agree changes to medication with patients – this can only be done by the prescriber. Nor do they discuss patients' medical conditions or the effectiveness of their treatment on the basis of test results (PSNC, 2007a). Community pharmacists should agree an action plan with patients which is then communicated to the appropriate health professional(s), who might include the general practitioner, practice nurse, community matron, prescribing pharmacist or district nurse.

By February 2007, 13 611 pharmacists had been accredited and in November 2006, 63 455 MURs were conducted in 4167 accredited community pharmacies in England (PSNC, 2007b). In 2007/8, pharmacies were paid £25 for each MUR.

- If community pharmacists are to advise doctors and other prescribers on medicines issues for individual patients, or on systems of medicines management, they must learn how to communicate confidently but diplomatically.
- If community pharmacists are to help patients manage their medicines effectively, then they must develop good listening skills and learn to move away from a compliance model of practice (where patients are expected to do as they are told) to a concordance model (where patients are supported by health professionals to choose the treatment options most appropriate for them). More information on compliance and concordance is provided in Chapter 14.
- In addition, community pharmacists need to develop a good understanding of the risks associated with the medications they supply, to help them identify inappropriate prescriptions and over-the-counter sales.

Communication with patients

Lack of communication skills has been identified as a barrier to community pharmacists providing medicines management services in the UK (Van Mil *et al.*, 2001). Studies conducted in the UK found that older patients only had contact with a community pharmacist on 12.5–15% of the times they collected a prescription from a pharmacy (Livingstone, 1996; Jones *et al.*, 1997). In addition, community pharmacists have historically spent a limited amount of time talking to patients about their medicines, the mean contact time for patient counselling ranging from 20 seconds to just over a minute (Savage, 1995; Livingstone, 1996). If pharmacists are to provide effective medicines management services, they need to spend more time talking to patients about their medicines. The new Pharmacy Contract encourages increased contact time with patients by paying community pharmacists for providing medicines use

reviews (see Box 6.7). This service helps pharmacists to provide a structured discussion with patients about their medicines and will hopefully help to overcome some of the barriers to communicating with patients, such as time and workload pressures (Savage, 1995; Smith *et al.*, 2004), lack of remuneration (Anderson *et al.*, 2003c), lack of training (Anderson *et al.*, 2003c), and lack of privacy (Sleath, 1996). Under the new Pharmacy Contract, pharmacists providing medicines use reviews are required to have a private consultation room, which should help to ensure patient privacy. Communication with patients is described in more detail in Chapter 8.

Communication with health professionals

In addition to developing good relationships with patients, it is important that community pharmacists develop good relationships with other health professionals, particularly GPs and other prescribers. This is essential to ensure that they can effectively intervene on high-risk prescriptions, and act as a source of information to prescribers about medicines and their use. It is important to remember that many community pharmacists play a vital role in preventing prescribing errors from reaching patients. The better a community pharmacist's communication skills, the more effective they are likely to be in this role.

Pharmacists may be reluctant to contact GPs about prescriptions that may cause a patient harm because: they lack confidence in their knowledge about the medication; they do not have access to the patient's medical records (and therefore do not understand the bigger picture of the patient's treatment); they have previously had their advice ignored when they have contacted a GP (Moody *et al.*, 2004); they have found GPs to be aggressive, rude or unapproachable (Landers *et al.*, 2002; Howard *et al.*, 2008). In addition, some pharmacists believe that GPs view them as subordinate, which may lead some community pharmacists to communicate with GPs in a deferential manner (Hughes and McCann, 2003), an approach that is unlikely to prove effective when wanting to get a prescription changed (Chen *et al.*, 1999).

Hawksworth *et al.* (1999) found that nearly one-fifth of recommendations made by community pharmacists to GPs were rejected. In one case, had the intervention been accepted, it would almost certainly have helped avoid a hospital admission. Considering how infrequently community pharmacists contact GPs to make interventions (only 75 interventions per 10 000 prescriptions dispensed), pharmacists should develop the skills necessary to maximise the impact of the interventions they do make. In addition, community pharmacists need clinical knowledge about medicines, which will help them to intervene on prescriptions more frequently. (See Chapter 15 for examples of the consequences for pharmacists when they do not intervene on prescriptions that cause a patient harm.)

In essence, community pharmacists need to build relationships with GPs and other prescribers wherever possible, in order to increase their effectiveness when making interventions on prescriptions. Face-to-face meetings (perhaps to discuss ways in which pharmacists and GPs can work more closely together and to increase GPs' understanding of the role of the community pharmacist) have been found to improve trust and communication between community pharmacists and GPs (Chen *et al.*, 2001; Zillich *et al.*, 2005). In particular, face-to-face meetings can improve pharmacists' confidence when they talk to GPs. This should help to avoid situations in which pharmacists use a deferential approach or GPs are dismissive of their recommendations.

Identifying patients at risk of adverse effects

As a profession, pharmacists promote themselves on the basis of their specialist knowledge about medicines; however, there is some evidence that they do not always apply this knowledge (Harding & Taylor, 1997). In order to perform an effective medicines management service, it is essential that community pharmacists have a robust understanding of the risks associated with the medications that they supply, and develop the skills necessary to identify when patients are at risk of PDRM. Community pharmacists'

knowledge about medication may be insufficient for a number of reasons.

Some community pharmacists may have difficulty accessing training (Howard, 2006) and this may contribute to their varying levels of commitment to continuing professional development (CPD) (Attewell *et al.*, 2005). In addition, some pharmacies may not provide access to appropriate information resources such as the electronic *British National Formulary*, online datasheets or *Stockley's Drug Interactions* (Howard, 2006). Most pharmacists have limited access to patients' medical records and rely on the PMR for a medication history. PMRs are often incomplete because they rarely include over-the-counter medications and rely on patients attending the same pharmacy each time a prescription is dispensed (whereas patients will often attend the most convenient pharmacy). This lack of access to patient-specific information can make it particularly difficult for a community pharmacist to assess the appropriateness of new and ongoing medications.

Pharmacists do, however, have access to quite a lot of patient-specific information including:

- **patient age:** prescriptions for children and older patients should be scrutinised carefully because they are at a higher risk of experiencing adverse effects
- **prescription exemptions:** patients with diabetes, renal dialysis, Addison's disease, myasthenia gravis, epilepsy, hypothyroidism will have an exemption form stating that they have a medical exemption; individual patients will have to be asked what the exemption is for
- **pregnancy and breastfeeding** patients will have a maternity exemption certificate which is valid from the date of issue to 12 months after the date of birth
- **PMR:** although the PMR may be incomplete, it can still provide a useful guide to concurrent medication for patients who regularly attend the same pharmacy. It can help pharmacists to identify inappropriate changes in medication dose, drug interactions and contraindicated drugs (based on drug treatments for specific diseases, e.g. patients prescribed inhalers could have asthma)

- **Patient or relative:** patients will often be able to tell you if they take medicines that have a high risk of interaction with other medicines, such as warfarin (an anticoagulant).

This information should be taken into account when assessing the appropriateness of a prescription. If a pharmacist identifies a prescription that may cause harm to the patient, they should contact the prescriber to clarify whether the patient is at risk, and, if this risk is unacceptable, request that the prescription is changed.

Pharmacists should keep a record of any recommendations they make. This record can be used to audit the provision of medicines management services (with a view to improving the services), to assess the appropriateness of recommendations, and to help pharmacists reflect on their recommendations and identify any areas where their knowledge base is weak. This can form part of their CPD cycle (see Chapter 15).

Community pharmacists and medicines management under the new Pharmacy Contract

The new Pharmacy Contract for the supply of services to the NHS by community pharmacists was introduced in England and Wales in 2005. This contract introduced three tiers of service provision:

- essential (Box 6.8)
- advanced (medicines use reviews and prescription interventions; Box 6.7)
- enhanced (Box 6.9).

Essential services have to be provided by all NHS pharmacy contractors in England and Wales, whilst advanced services can only be provided by accredited contractors. In addition, the enhanced services are provided on the basis of local need. This means that only the services that local primary care trusts (PCTs) buy (commonly known as commissioning) are provided. It is not enough, however, for pharmacists to wait for PCTs to commission these services. In the new competitive market

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Box 6.8 Essential services

- **Dispensing:** 'medicines and appliances ordered on NHS prescriptions together with information and advice to enable safe and effective use by patients and carers and maintenance of appropriate records.' (PSNC 2004b)
- **Repeat dispensing:** 'management and dispensing of repeatable NHS prescriptions for medicines and appliances in partnership with the patient and the prescriber. . . Ascertain[ing] the patient's need for a repeat supply and communicat[ing] any clinically significant issues to the prescriber.' (PSNC 2004e)
- **Disposing of unwanted medicines:** 'Acceptance by community pharmacies of unwanted medicines from households and individuals which require safe disposal.' (PSNC 2004c)
- **Promoting healthy lifestyles (Public Health):** Providing 'opportunistic advice on lifestyle and public health issues to patients receiving prescriptions. . . [pro-actively participating] in national/local campaigns to promote public health messages to general pharmacy visitors during

specific targeted campaign periods.' (PSNC 2004d)
- **Signposting:** Providing 'information to people visiting the pharmacy who require further support, advice or treatment which cannot be provided by the pharmacy on other health and social care providers or support organisations who may be able to assist the person' including referrals to other health or social care providers, if appropriate. (PSNC 2004f)
- **Support for self-care:** Providing advice and support 'to enable people to derive maximum benefit from caring for themselves or their families.' (PSNC 2004g)
- **Clinical governance:** 'Identify a clinical governance lead and apply the principles of clinical governance (see Chapter 16) to the delivery of services in the pharmacy including standard operating procedures; recording, reporting and learning from adverse incidents; participation in continuing professional development and clinical audit; and assessing patient satisfaction.' (PSNC 2004a)

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of the NHS, community pharmacists need to actively identify local service needs and campaign the PCTs to ensure that these services are commissioned from community pharmacies. Community pharmacists can identify the service needs of their local population in numerous ways.

- **Discussion with PCTs:** Each PCT will have a 'commissioner', the person who is responsible for buying in services. In addition, medicines management teams (including the prescribing adviser and practice pharmacists) will have identified local medicines management needs. Community pharmacists can offer to provide some of these services.
- **National Service Frameworks (NSFs):** The Government has published a series of guidelines for managing specific patient groups such as older people and children. The NSFs include a number of enhanced services that could be provided by community pharma-

cists, for example clinical medication reviews.
- **Local patient prospectus:** This describes where NHS funds have been spent and which services are offered locally, and can be useful to help identify gaps in local service provision.
- **Local knowledge:** Community pharmacists have regular contact with the general public in their local area. This allows them to build a picture of their patient group, and the types of services they most need.
- **Patient feedback on services:** This can be gained formally (through questionnaires) or informally through comments made by patients when you talk to them. Patient feedback can be used to evaluate existing services, and to identify which services the general public would like to be provided.

Armed with the above information about existing services and service needs in the local population, community pharmacists can approach the commissioners within the local PCT to propose

Box 6.9 Enhanced services

- **Supervised administration:** Supervise 'the consumption of prescribed medicines at the point of dispensing in the pharmacy, ensuring that the dose has been administered to the patient, [as part of a] user-friendly, non-judgmental, client-centred and confidential service' , for example for methadone, and medicines used for the management of mental health conditions or tuberculosis (PSNC, 2005h).
- **Needle and syringe exchange:** 'provide access to sterile needles and syringes, and sharps containers for return of used equipment. Where agreed locally, associated materials, for example condoms, citric acid and swabs, to promote safe injecting practice and reduce transmission of infections by substance misusers will be provided.' Appropriate public health education will also be provided to service users. (PSNC, 2005g)
- **Smoking cessation:** 'provide one-to-one support and advice to smokers, refer to specialist services if necessary, and facilitate access to, and where appropriate supply, appropriate stop smoking drugs and aids.' (PSNC, 2005g)
- **Care home (support and advice on storage, supply and administration of drugs and appliances):** 'ensure the proper and effective ordering of drugs and appliances and their clinical and cost effective use, their safe storage, supply and administration and proper record keeping in care homes such as nursing and residential homes.' (PSNC, 2005a)
- **Medicines Assessment & Compliance Support:** 'Medicines support over and above that provided as part of the essential and enhanced services, including assessment of patients' ability to take their medicines and the supply of compliance aids as appropriate, including compliance charts, screw top closures, medication administration

record (MAR) charts, labelling medicines in large fonts and multi-compartment compliance aids.' (PSNC, 2005d)
- **Full (level 3) clinical medication review** (see Box 6.5) (PSNC, 2005c)
- **Minor ailment service:** Providing 'advice and support to people on the management of minor ailments, including where necessary, the supply of medicines for the treatment of the minor ailment, for those people who would have otherwise gone to their GP for a prescription.' (PSNC, 2005e)
- **Out-of-hours service:** 'Providing access to pharmacy services during an extended period of opening to ensure that people have prompt access to medicines during the out of hours period.' (PSNC, 2005f)
- **Supplementary prescribing:** 'Implementing patient specific clinical management plans (CMP) with the patient's and doctor's agreement, including prescribing medicines, ordering diagnostic tests, monitoring test results and response to treatment, adjusting treatment accordingly, and referring to other primary healthcare professionals as appropriate.' (PSNC, 2005i)
- **Emergency Hormonal Contraception Service:** 'Providing, free of charge, levonorgestrel emergency hormonal contraception (EHC) to customers within the constraints of a patient group direction (PGD). If customers requesting EHC fall outside the PGD, they should be referred to an appropriate healthcare professional or sold the product OTC (if appropriate). All customers requesting EHC should be given appropriate counselling about contraception and sexually transmitted infections.' (PSNC, 2005b)

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new services that could be provided (which the PCT can then pay for). For example, Lloyds Pharmacy in London now offers a 'stop now' service and a 'cut down and quit' service for smokers, which include free weekly consultations where carbon monoxide readings are taken and advice is given on managing withdrawal symptoms (Pharmaceutical Journal, 2007).

The new Pharmacy Contract has begun a shift in the source of funding for community pharmacy services away from dispensing large volumes of prescriptions. By providing funding to pharmacies for wider medicines management services, the aim is to expand the role of community pharmacists in providing health and social care services to the general public.

Summary

Medicines management has arisen from the recognition that drugs can cause injury to patients, but that many of these injuries are potentially preventable if services for managing medicines are improved. In the UK, medicines management aims to deliver the best possible outcomes for patients whilst minimising cost to the NHS. It is not simply about cost cutting, but about cost-effectiveness.

Medicines management is a complex process, involving various stages in medication use (prescribing, dispensing, administering and monitoring) and multiple people, including a range of health professionals, patients and their carers. Medicines management services have been divided into five categories: clinical, systems and processes, public health, patients and their medicines, and interface management.

Provision of good medicines management services requires community pharmacists to build relationships with both patients and prescribers. To do this, they need to develop excellent communication skills and ensure they have a good understanding of the risks associated with the medicines they supply. In addition, they must develop the necessary skills to identify patients at risk from medicines management problems, such as problems adhering to medicines, and potential drug interactions or contraindicated medicines.

The new Pharmacy Contract has provided community pharmacists with a different way of funding their work, which should encourage them to provide a broader range of medicines management services.

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