Development of a method for clinical medication review by a pharmacist in general practice


Introduction

Review of patients on chronic therapy treated by general practitioners has been shown to be inadequate [1]. The poor quality of prescription review has been highlighted in two UK studies [1 2], where evidence of inadequate clinical control included patients frequently receiving repeat prescriptions without formal authorisation. There was also an absence of checks on medication adherence and inadequate methods of identifying patients needing a review. The proportion of patients on repeat medication rises with age and 90% of patients who are 85 years old or over receive prescriptions on a repeat basis [3]. The incidence of adverse drug reactions and drug-related admissions to hospital also rises with age [4 5]. Inappropriate prescribing in older people is often a contributing factor to hospital admissions [6 7]. In one study 23.7% of inpatients admitted to general and medical beds were receiving contraindicated or adversely interacting drugs [8].

However, if all patients on regular repeat prescriptions were reviewed by the general practitioner every year the additional workload for each doctor would represent approximately an extra weeks work per annum [9]. This is not a practical proposition in the current general practice environment in the UK. One method of addressing this problem is for pharmacists to conduct medication reviews. The UK NHS Health Technology Assessment programme identified this as a priority, and is funding research on Clinical Medication Review by a clinical pharmacist of patients on repeat prescriptions in general practice (the CMR study) [10]. The nature of such an intervention is a key issue and this paper describes the method for clinical medication review developed for use in the study.

Developing the method

Background

Pharmacists have pharmacological knowledge and many have acquired consultation skills. While they lack the breadth of pathological knowledge and clinical skills of doctors, these may not be necessary to provide what would, in effect, be a screening service to patients on apparently stable drug regimens. This is reflected in reports by the UK Audit Commission and Royal College of Physicians which have suggested that a pharmacist may be able to help initiate a review of repeat prescribing [11,12]. The Primary Care White Papers also propose new roles in the prescribing or supply of medicine, including medication review by a pharmacist [13,14]. Although a number of service developments have been started by health authorities which involve pharmacists in reviewing repeat prescribing [15], there are few published controlled trials in the UK. The concept is not new in North America, where trials have demonstrated the benefits of pharmacist involvement in reviewing long term prescribing in the community [16-20]. Borgsdorf et al [18] describe a medication review service at a managed care facility. The service involved a pharmacist reviewing medication in consultation with the patient. During the visit the pharmacist evaluated how the patient used the medication, their clinical response to it and adverse effects experienced. If necessary the pharmacist taught the patient how to use the drugs more appropriately. The pharmacist then changed the medication as appropriate and arranged any follow up visits. In the study 65% of the drugs reviewed each month were judged problematic.

Cassidy et al. [17] evaluated the impact of two types of pharmacist medicine review clinic on physician time. In one clinic the pharmacists conducted a chart review only and did not see the patient. In the second clinic the pharmacist also interviewed the patient. A pharmacist reduced practitioner time in both clinics with the greatest impact observed in the interview clinic. Two studies [19,20] used prognostic indicators to target patients who should receive a medication review. One study [16] used the Medical Appropriateness Index (MAI) to assess the appropriateness of the patients’ regularly scheduled medicines. Whilst work has been done in the UK to develop indicators of appropriateness of long term prescribing [21] their role in evaluating prescribing at patient level is unclear.

A number of studies have evaluated the role of the pharmacist in reviewing repeat prescriptions in the UK [22-25]. In the majority of cases the review did not...
involve the patient [23,24,25]. The pharmacist reviewed the notes and surgery computer and made recommendations to the doctor. The nature of the recommendations varied, some focusing on technical aspects of prescribing, eg. inappropriate qualities [23] and others on appropriateness of therapy [22,24].

Burtonwood [22] reports on a pharmacist-run medicine review clinic which involved interviewing the patient. The purpose of the interview was to elicit the patients’ medicine taking behaviour and their experience of adverse effects.

Origins of method
This paper is an extension of work done by the authors [26,27]. We previously described a hospital based self-medication study in which a medicine review was an integral part [26]. The review was initiated by the pharmacist and considered both the patients reported use of medicines as well as the appropriateness of each drug. The role of a pharmacist in medicine review was further developed and applied to general practice [27]. Patients were interviewed about their medicine use by the pharmacist who reviewed the medication with the general practitioner. In the current paper we describe a clinical medication review by a pharmacist which takes place in the surgery. We propose that the pharmacist will judge which changes, arising from a review, will need to be referred to the doctor and which they can initiate themselves.

Definition
Clinical medication review is the process where a health professional reviews the patient, their illness and drug treatment in a consultation. The progress of the conditions being treated and the appropriateness and continuing need of each drug are considered. Other issues, such as medication adherence, actual and potential adverse effects, interactions and the patient’s understanding of the condition and its treatment are also considered where appropriate. It is a 3-stage process (see Figure 1).

Setting
Patients are invited to the review at the surgery by letter. The pharmacist conducts clinics in the surgery, and during each consultation with the patient, undertakes the process described below.

Process

Stage 1 – Data gathering

Identify drugs taken
It is important to establish which medicines the patient is actually taking. This may differ from what is prescribed or recorded in the records. This could be because the patient is not taking the medicine as prescribed or because the records themselves are not up to date. Patients may be taking:-
• regular non-prescription medicines (e.g. 75mg aspirin);
• illegal drugs;
• medicines prescribed for other patients (e.g. a relative).

Identify indications
It is important to attempt to identify the original indication for each drug from the medical record. Where it is not recorded, the patient may know why the drug was originally started.

Assess adherence to medication
Patients do not always take their medication as prescribed. This could be altering the dose, frequency or simply stopping the medicine altogether. The reason may be intentional i.e. they have made a conscious decision not to take the medication and there could be a variety of reasons for this:
• Misunderstanding of the purpose of medication.
• Experiencing side effects and deciding to stop.
• Perception that medication is ineffective or inappropriate.

Alternatively the non-adherence may be unintentional; they may want to take the medicines correctly and not be able to. This may arise from:
• inadequate instructions on the label e.g. “as directed”;
• lack of knowledge of the purpose of medicine;
• packaging difficulties eg. inability to open bottles or read label;
• inability to use device e.g. inhaler, eye drops.
• complex medicine regime which the patient cannot understand;
• memory difficulties e.g. from simple forgetfulness to dementia.

Identify unaddressed medical problems
The consultation may also highlight previously unknown or unrecognised problems. The pharmacist has a responsibility to ensure that these problems are addressed. Minor problems could be treated by the pharmacist e.g. analgesia for self-limiting conditions. Major problems will need to be discussed with the patient’s doctor.

Stage 2 - Evaluation

Consider continuing need
The continuing need by the patient for each drug should be evaluated with the doctor. It may be necessary to discontinue, or switch to a more appropriate treatment.

Identify suboptimal treatment of recognised disease
There should be evidence of efficacy for each prescribed medicine. Evidence can be found from both the clinical record and the patient. Pharmacists are not qualified to perform a physical examination, or to diagnose, but certain obvious signs and symptoms can be evaluated, e.g. ankle swelling in a patient with heart failure.

If there is evidence of suboptimal treatment, it is important to ensure that appropriate tests/investigations are conducted e.g. blood sample taken for urea and electrolytes, blood pressure measurement. If the pharmacist is not able to perform the test or make a diagnosis, then referral to an appropriate member of the team is required, e.g. nurse for blood samples, GP for diagnosis. Once results are known, suggestions for medication change should be discussed with the doctor as necessary.
Doses may be suboptimal for a number of reasons:

- Treatment may be initiated and not titrated to full dose e.g. statins.
- Doses may be too high in light of new evidence, e.g. bendrofluazide 5mg or atenolol 100mg for hypertension.
- Patient’s condition may have deteriorated or improved.

Subsequent patient follow-up will be required to ensure that the response is satisfactory at the new dose.

Identify side effects

Side effects may not be apparent from the clinical record. Asking the patient will help to identify clinically relevant side effects of medication. The British National Formulary is a standard against which side effects can be judged. Appropriate action should be implemented and relevant adverse drug reactions reported to the relevant body (in the UK the Committee on Safety of Medicines).

Identify clinically relevant drug interactions or contraindications

Where clinically relevant interactions or contraindications are identified, suitable amendments to the therapy should be made.

Consider costs

Changing therapy to a less expensive but equally efficacious alternative does not directly benefit the patient. It does, however, benefit the population as a whole, since it releases additional resources for the National Health Service. Prior agreement with the practice is required for the types of changes that are acceptable. The range of possible changes are shown in Figure 2. Reasons for making such changes need careful explanation to the patient, who should be given the opportunity to switch back if they are unhappy with the new medicine. The pharmacist should ensure that all appropriate monitoring is done and the new medicine has equal or improved efficacy and tolerability to the previous medicine.
Stage 3 – Implementation

Categories of intervention

The third stage of the pharmacist clinical medication review involves implementing changes and their documentation. It is important for the general practitioner and the pharmacist to establish a protocol for implementing changes. This would include changes that can be made without prior consultation with the doctor. For the purposes of the CMR study, 8 broad categories of pharmacist intervention were defined and are described in Table 1, along with examples of reasons for each intervention.

Process for implementing change

The review may have identified one or more serious problems that need the involvement of the doctor.

The pharmacist will need to judge (guided by the agreed protocol) whether the patient needs to be referred to the doctor for a physical examination. In some instances it will be possible for the pharmacist to discuss the case with the doctor and then implement the change:

- Identification of clinically significant side effects or drug interactions which require a change to therapy.
- Initiation of new therapy eg. aspirin prophylaxis following a myocardial infarction.
- Change of existing treatment to a different therapeutic group.
- Discontinuation of therapies which have limited clinical value.
- Exacerbation of an existing medical problem eg. heart failure or chronic bronchitis.
- Identification of a new medical problem.

There will be some minor changes to treatment that the pharmacist can initiate themselves without reference to a doctor. Examples of these are:

- Optimising dosage e.g. reducing bendrofluazide from 5mg to 2.5mg for hypertension.
- Checking cholesterol levels and increasing dose of drug accordingly.
- Formulation change, eg. to a slow release preparation.
- Switch from proprietary to generic medication. Again these will be covered by the protocol.

Patient education or counselling

The consultation will identify some patients who

Table 1 Medication interventions with examples of reasons for the intervention

<table>
<thead>
<tr>
<th>Medication intervention</th>
<th>Reason for intervention</th>
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<tbody>
<tr>
<td>Stop drug</td>
<td>Indication no longer valid</td>
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<tr>
<td></td>
<td>Duplication of therapy</td>
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<td></td>
<td>Non adherence</td>
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<td></td>
<td>Adverse effect</td>
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<tr>
<td>Switch drug (same indication)</td>
<td>Contraindication</td>
</tr>
<tr>
<td></td>
<td>Adverse effect</td>
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<tr>
<td></td>
<td>Drug interaction</td>
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<tr>
<td></td>
<td>Cheaper alternative</td>
</tr>
<tr>
<td>Adherence counselling (no drug change)</td>
<td>Non-adherence</td>
</tr>
<tr>
<td>Alter formulation, dose, timing</td>
<td>Formulation, dose or dosing schedule not optimal</td>
</tr>
<tr>
<td>Start drug (new indication)</td>
<td>Addition of drug for untreated indication</td>
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<tr>
<td>Test required</td>
<td>Monitor efficacy</td>
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<tr>
<td></td>
<td>Minimise ADRs</td>
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<tr>
<td></td>
<td>Monitor adherence</td>
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<tr>
<td>Technical</td>
<td>Generic switch</td>
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<tr>
<td></td>
<td>Altering quantities on prescription</td>
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<td></td>
<td>Deleting unused medication from repeat record</td>
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<td></td>
<td>Adding dosage instructions</td>
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<tr>
<td>GP referral</td>
<td>Insufficient information to make recommendation</td>
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<tr>
<td></td>
<td>Complex medical conditions</td>
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<td></td>
<td>New diagnosis suspected</td>
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<tr>
<td></td>
<td>Worsening of existing conditions requiring a medical assessment</td>
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</tbody>
</table>
either misunderstand the purpose of their medication or who are not using it appropriately. Examples of this include:

- Patients not taking their steroid inhaler regularly.
- Patients unable to use their medication e.g. open bottle tops or use eye drops.
- Patients who perceive that the treatment may be harming them or not giving them benefit.

The pharmacist will need to identify reasons for the patient’s difficulties with the medication and negotiate a plan to help them use it correctly. This may involve providing them with appropriate information or advice. Alternatively it may involve liaising with the local pharmacy to alter the packaging to the medication.

Communication and record keeping

The following steps must be taken to ensure appropriate record keeping and communication:

- Record details of the medicine review in the notes. This includes any proposals, follow-up required and outcomes expected.
- Some interventions will need permission from the doctor before alterations can be made to treatment. This is a professional decision at the pharmacists’ discretion.
- Where medication has been changed, the computerised repeat medication record must also be altered. A date for the next medication review should be added to the computer so that reception staff knows when next to call in the patient for review.

There will be some patients who are well established on their treatment, experiencing no problems and do not need any change to be made. The pharmacist will still need to document the current medication and record that no intervention was necessary.

Communication with the patient about changes in therapy is important. It may be important to liaise with the patient’s carers. Ideally the patient should be given a written copy of:

- Name of drug
- Strength, dose and frequency
- What it is for
- Date of prescribing
- Review date
- In what circumstances to see the doctor sooner

Discussion

This paper describes the development of a method for a systematic approach to pharmacist review of patient medication, in the general practice setting. It is based on the hypothesis that a suitably qualified clinical pharmacist can undertake such a clinical medicine review. Pharmacist clinical medication review differs from a review undertaken by a GP, because pharmacists lack in-depth training in diagnosis and are not currently able to prescribe. However, the pharmacist can directly manage many elements of the medication review process, in collaboration with other members of the health care team. The pharmacist brings particular skills to the process, in terms of a knowledge of applied pharmacology, along with an understanding of how medicines are supplied and presented and how patients manage their medicines in the home setting (including medication adherence issues).

The CMR approach contrasts with previous UK studies involving pharmacists reviewing repeat prescribing [23,24,25]. In these studies the role of the pharmacist focused on the prescribing review, remote from the patient. Clinical medication review, in contrast, is patient-centred and includes aspects such as:

- Current clinical situation
- Medication adherence: what the patient is actually taking and how they are taking it
- Continuing need of medication
- Patient understanding of medicines
- Side effects

Clinical medication review could take place in the surgery, a community pharmacy or a patient’s home. The advantages of surgery-based consultations are that the medication records are available, ease of liaison with the doctors and the pharmacist can conduct a “clinic”. The disadvantage is that it may be difficult for some older patients to travel to the practice and a community pharmacy may be more easily accessible to patients. However, finding room for a private interview may be difficult. Conducting the review in the patients’ home is the most convenient for the patient, but the most time consuming for the pharmacist.

The approach outlined in this paper adopts a more patient-centred and less drug-centred approach, in which medication is considered in the context of overall health. It takes a step forward in recognising that the clinical review of medication in general practice is often inadequate and proposes a structured approach that pharmacists could adopt to fulfill this role. In a recently published UK Department of Health report [28], it is proposed that two new categories of prescribers could be introduced, “independent prescribers” who are responsible for the initial assessment of a patient, devising a treatment plan and authorised to prescribe medicines as part of the plan. Also, “dependent prescribers” who are authorised to prescribe certain medicines within an agreed treatment protocol for patients whose conditions have been diagnosed by an independent prescriber. A pharmacist performing the task of a clinical medication review, as outlined in this paper, would clearly fall into the latter category.

Finally, it is important to consider training needs. Most undergraduate courses teach basic clinical and communication skills. The level of these skills that would be required for a clinical medication review in primary care are significantly higher. This would mean that relevant post graduate training would be necessary before a pharmacist could take up this role.

Acknowledgement

We thank Nick Freemantle and Andy Vail for their advice on the writing of this paper and Denise Buttress for secretarial support.

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