Clinical Pharmacists in primary care: a safe solution to the workforce crisis?

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Contributors
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Competing interests
We have read and understood JRSM policy on declaration of interests and declare the following interests: BH and AM are practicing GPs in the NHS. DK, GG and HZ declare no competing interests.

Abstract
Increasing workload in National Health Service (NHS) primary care in the United Kingdom (UK) is placing a dwindling workforce under unsustainable pressure. Significant expansion of the General Practitioner (GP) workforce is unlikely, making it essential that other options are considered to ensure provision of safe and effective care. One possible answer is the integration of clinical pharmacists in GP practices. Pharmacists require significantly shorter training than GPs, and their numbers are currently increasing. When integrated in GP practices, pharmacists may have impact in three key areas: prescribing safety, health outcomes, and access. Trained to identify and solve medication related problems, they can also assist in chronic disease management and auditing for performance measured aspects of primary care, potentially reducing GP workload and therefore improving patients’ access to GP appointments.

Although some questions remain about how pharmacists can be most effectively integrated in general practices, existing evidence suggests likely benefit both for patients and the NHS. Positive outcomes of a recent pilot scheme placing pharmacists in UK NHS general practices have resulted in further investment in this programme. With greater numbers anticipated, there is an important opportunity for further research to assess the impact on primary care safety, quality and access.
Introduction

Primary care in the United Kingdom’s (UK) National Health Service (NHS) is in crisis. Systematic underfunding, with specific neglect of primary care compared to other clinical specialties, has combined with ever rising demand and administrative workload to place a now dwindling workforce under unsustainable pressure.¹

A major factor in the growing workload in primary care is prescribing. An aging population and higher prevalence of chronic diseases is leading to increased case complexity and polypharmacy, and consequently greater potential for prescribing errors.² Nearly 5% of all prescriptions in general practices in England have prescribing or monitoring errors,³ while in some areas up to half of the prescriptions are prone to error.⁴ Although most errors are of mild or moderate severity, they can be life changing for patients and costly for healthcare systems, accounting for 3.7% of preventable hospital admissions.⁵

Workload and time pressures exacerbate prescribing errors.⁶ Concerns about workload and access in primary care have led the UK Government to pledge increases in the General Practitioner (GP) workforce,⁷ but GPs take at least ten years to train and declining numbers of medical graduates internationally suggests a limited pool for recruitment. In this article, we discuss integration of clinical pharmacists in GP practices as a potential solution to these problems.

Pharmacists: a solution to the crisis?

Whilst the pool of GPs is limited, the number of pharmacists is increasing.⁸ Pharmacists undertake shorter training than GPs, with four years undergraduate degree followed by one year of pre-registration experience. Whilst the role of pharmacists has expanded beyond dispensing of medications and now involves provision of several other aspects of patient care, their knowledge and expertise is often under-utilised. Making use of their expertise in medication management, pharmacists could perform a variety of tasks in primary care, improving patient safety and clinical outcomes through optimized medication use, and potentially alleviating workload, freeing up GPs to deal with more complex cases, and reducing waiting times for appointments.

Pharmacists have been working in primary care teams for some time in non-patient facing roles. Areas in which they support practices include auditing for performance targets, implementation of enhanced services, preparation for inspections by the Care Quality Commission (CQC), training staff in repeat prescribing, and providing medicines information for other clinicians. However, these roles currently vary from practice to practice. The widespread integration of
pharmacists in both patient facing and non-patient facing roles therefore has the potential to have impact in three key areas: safety of prescribing, improved health outcomes, and access to primary care through reduction of GP workload (Table 1).

**Safe prescribing**
Involvement of pharmacists can result in safer prescribing and clinical improvements in transfer from secondary to primary care. A pharmacist-led information technology intervention for reducing medication error, carried out in 72 UK General Practices, showed significant reduction of medication related errors, such as prescription of beta-blockers in patients with asthma or failure to provide appropriate monitoring of angiotensin-converting-enzyme (ACE) inhibitors or loop diuretics. In Canada, pharmacists introduced in primary care practices identified potential drug related problems in 93.8% (n=909) of patients. The most common shortcomings were patients requiring therapy but not receiving it (27%), not taking medications appropriately (16.5%) and receiving a too low dose of their medication (16.2%). In Australia, pharmacists based in two general practices resolved 74% (n=166) of medication related problems; overall adherence to medication regimes has also improved with pharmacist care. Finally, a recent systematic review of pharmacist led interventions in primary care suggested that pharmacists could improve appropriateness of prescribing in older adult patients.

**Health outcomes**
Pharmacists integrated in general practice can have an important role in disease prevention, facilitating smoking cessation and weight management for example. In GP clinics for chronic conditions, they can help bring about significant reductions in glycosylated haemoglobin, cholesterol and cardiovascular risk, as well as improving adherence to therapy, exacerbations, over-prescribing, and quality of life in patients with chronic obstructive pulmonary disease (COPD). Pharmacist interventions, including patient education, feedback to physicians, and medicine management, also have potential for a significant impact on blood pressure. Although there is considerable variability in the size of effect in individual studies, meta-analysis suggests a reduction in systolic blood pressure by 7.6 mm Hg (95% CI -9.0 to -6.3) and diastolic by 3.9 mm Hg (95% CI -5.1 to -2.8).

**GP workload pressure and primary care access**
The average GP authorizes 200 repeat prescriptions each week. With no protected or additional time available, repeat prescriptions, medication reviews, reconciliation of medications on letters and discharge summaries are often squeezed into consultations or carried out between seeing patients and after surgeries. In an aging population with increasing chronic disease and comorbidity, another significant demand on GPs’ time is reviewing and managing patients with long term conditions. Pharmacists’ ability of to perform these activities has the potential to address the significant GP workload associated with medicines and chronic disease management. This could free up time for GPs to focus on other aspects of care and at the same time improving access to primary care. Short courses are also now available (typically 6 months part time) to train pharmacists as prescribers, adding significantly to their ability to deal independently with patients and with medication related problems.

A survey of GP Practice Managers suggested that the most burdensome aspect of bureaucracy in primary care was the auditing necessary for performance related payments. With many performance targets relating to medicines management, there is significant opportunity for pharmacists to have impact on GP and manager bureaucratic workload.

Cost effectiveness
Several studies have demonstrated cost-effectiveness of involvement of pharmacists in primary care in terms of improvement in outcomes such as cardiovascular risk, and avoidance of error. Where pharmacists are able to save GP time or appointments directly, for example in assessment, diagnosis and treatment of patients with minor illness, there is likely to be a clear cost advantage for the NHS. However, it may be necessary to implement changes at scale in order to see cost savings; one pilot study of pharmacist-led chronic pain management resulted in increased costs compared with usual care.

Patient satisfaction
Pharmacist consultations in primary care are positively received by patients, who report high satisfaction with care and appreciation of the time offered by pharmacists as well as recognition of their expert drug knowledge. Patients feel comfortable consulting with pharmacists in GP practices, and appreciate the privacy offered in consulting rooms. They also show greater acceptance of pharmacists as part of the team in GP practices, with more appreciation and respect for their advice.

Challenges of pharmacists’ integration in GP practices
Whilst the integration of pharmacists in the primary care setting provides real benefits for both patients and practices, some studies have highlighted challenges, often related to communication with practice staff, patients and local retail pharmacists. Pharmacists have noted a degree of initial resistance amongst primary care staff, often relating to lack of knowledge or understanding of pharmacists’ roles and professional abilities, where development of ‘clinical respect’ took time.22,23 Patients also are sometimes initially confused as to the pharmacist’s role or fail to see the point in seeing a pharmacist.22,23 GPs have highlighted the possibility of conflict between practice based and pharmacy based pharmacists, sometimes worrying about the effect on relationships developed with local pharmacies over many years. Some practical barriers also exist, such as finding room to accommodate pharmacist led clinics in smaller practices.23

**Table 1. Benefits and challenges of integration pharmacists in primary care**

| Benefits                                      | Challenges                                      
<table>
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<tr>
<td>Patients</td>
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<tr>
<td>Improved understanding of and adherence to medication</td>
<td>May feel consultation or advice is unnecessary</td>
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<td>Reduced medication related problems and adverse drug events</td>
<td>May prefer consulting with GP</td>
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<tr>
<td>Improved clinical health outcomes</td>
<td>Conflicting information</td>
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<td></td>
<td>)community vs. practice pharmacist(</td>
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<td>GPs and practice staff</td>
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<tr>
<td>Reliable drug information and solutions to drug-related problems</td>
<td>- Duplication of GP services</td>
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<tr>
<td>Improved drug knowledge</td>
<td>Difficulty accommodating pharmacist</td>
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<tr>
<td>Improved prescribing safety and quality</td>
<td>Lack of time to make use of pharmacist</td>
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<tr>
<td>More accurate medication records</td>
<td>Increased workload in responding to pharmacists’ queries</td>
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<tr>
<td>Pharmacists</td>
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<tr>
<td>Increased scope of practice</td>
<td>Resistance of staff and patients</td>
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<tr>
<td>Integration into the primary healthcare team</td>
<td>Employed for limited hours</td>
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<tr>
<td>Increased professional satisfaction</td>
<td>May prove less financially rewarding</td>
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**Benefits**

Health system
- Reduced avoidable costs through rationalised prescribing and avoided adverse drug events
- Improved primary care access and reduced avoidable Accident and Emergency visits
- Improved health outcomes and patient satisfaction

**Challenges**
- Salary and training costs

**International experience**

The distribution of pharmacists across healthcare and industry sectors varies significantly amongst countries. Globally, the majority of pharmacists work in the community (55%), followed by hospitals (18%), and the pharmaceutical industry (10%). Europe has the highest proportion of pharmacists in community settings (71%), whilst Southeast Asia the largest proportion in the pharmaceutical industry (31%). Integration of pharmacists in primary care has been tested in a number of countries and healthcare systems, with some degree of variability in roles and responsibilities. Core activities have generally involved medication review, education, assessment of adherence, and disease and lifestyle advice. These activities are often focused on patients with long-term conditions and on patients at high risk of medication related problems such as those with polypharmacy (Table 2).

**Table 2.** The role of pharmacists in primary care and distribution by sector in selected countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Pharmacists’ activities in primary care</th>
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<tbody>
<tr>
<td>USA</td>
<td>Prescribing according to protocols</td>
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<tr>
<td></td>
<td>Preventive medicine in the areas of immunizations, smoking cessation, polypharmacy assessment, and medication reconciliation</td>
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<tr>
<td></td>
<td>Patient education</td>
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<tr>
<td></td>
<td>Recommendations to prescribers</td>
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<tr>
<td>Australia</td>
<td>Perform medication management reviews</td>
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<tr>
<td></td>
<td>Provide patient medication advice</td>
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<tr>
<td></td>
<td>Develop and manage drug safety monitoring systems</td>
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<tr>
<td></td>
<td>Support GPs prescribing and provide update GPs on new drugs</td>
</tr>
<tr>
<td>Country</td>
<td>Activities</td>
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</table>
| Canada  | Conduct medication reviews, educating, physical assessment (e.g. blood pressure), and monitoring  
Provide medication information to family health teams |
| UK      | Resolving problems with medicines by working closely with practice teams, and local community pharmacists  
Prescribing, advising, responding to discharge from hospital, rationalising repeat prescription lists, education for practice teams  
Prescribing audits and supporting Quality Outcome Framework (QOF) |
| Japan   | Provide education, health and lifestyle advice, and monitoring |
| Thailand| Perform primary care pharmacy practice including medication reviews, educating, and assessing adherence  
Providing Thai traditional and herbal medicine, and conducting health consumer protection  
Pharmacists in district (or community) hospitals are responsible for supervision of primary care at a sub-district level |

**Implications for the NHS**

Substantial GP workforce growth is unlikely to be achievable in the near future, making consideration of alternative models of primary care essential. Pharmacists integrated into GP practices can be seen to offer a practical solution, with the potential to reduce GP workload and improve access, whilst at the same time improving quality.

The reported success of a recent pilot programme in improving health outcomes and access to care has led to expansion of this initiative. NHS England is investing £100m to support 1500 clinical pharmacists to work in general practice by 2020/21 in addition to over 490 pharmacists already working in general practice as part of the initial pilot scheme. There are important implications for training and support for the new GP pharmacist workforce; there will be a need for clarity in their role, with uniformity across areas and practices, and definition of competencies for their new extended activities. Promotion of the role of pharmacists will also be important, amongst other health care professionals as well as the public, to increase awareness and understanding of their expertise.

Increasing numbers of pharmacists in primary care will provide useful information, with a clear opportunity for research systematically to assess benefits and impact on safety, quality and
access. The cost-effectiveness of any planned integration of pharmacists into general practice will be crucial, as will evidence about impact on clinical outcomes and patient satisfaction.
References


interventions for alcohol reduction, smoking cessation and weight management, including metaanalysis for smoking cessation. BMJ Open. 2016 Feb 1;6(2):e009828.


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