

# Managing patients at high risk of problematic polypharmacy: potential role of the practice-based pharmacist

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## Executive summary

NHS England aims to have a patient facing practice based pharmacist per 30,000 of the population by 2020. Clinical pharmacists (CPs) cover a range of clinical services, prescription management, audit and education, and medicines management. There is potential for CPs to implement deprescribing in patients with problematic polypharmacy as part of a multi-disciplinary team.

Current evidence was examined around:

- the availability and role of CPs in general practice
- strategies for case finding patients at risk of problematic polypharmacy
- pharmacist-led interventions for reducing polypharmacy.

Where CPs were co-located in general practice, trials reported a largely positive effect on outcomes such as HbA1c or blood pressure. Evidence is lacking on the impact of co-located pharmacists on hospitalisation rates or mortality.

Effective strategies for case finding patients at risk of problematic polypharmacy consistently involve collecting information about: prior health care use, multi-morbidity or polypharmacy, and medical diagnoses or prescribed medications. However, no strategies currently include potentially relevant factors such as functional status, social support and medication taking behaviour.

Pharmacist-led interventions to support deprescribing in primary care include:

- medication review
- education of patients
- education of GPs and nurses
- embedding the pharmacist as part of a multi-disciplinary team.

There is some evidence to indicate that education of other healthcare professionals by CPs resulted in successful deprescribing of targeted medications. Educational interventions targeted at patients were not successful.

## Background

General practice manages 90% of all patient contacts in the NHS (1). A growing number of these contacts involve patients with multimorbidity, the management of which often results in polypharmacy (2).

It is recognised that polypharmacy can be beneficial in circumstances where medicine use has been optimised. However, problematic polypharmacy occurs when multiple medications are prescribed inappropriately, or where the intended benefit of the medication is not achieved.

It has been estimated that there is a 13% risk of an adverse drug interaction if a patient is taking two medicines, rising to 38% if they are prescribed 4 medicines (3). Older people are at an increased risk of problematic polypharmacy due to a higher prevalence of multimorbidities, decreased physical reserve and underrepresentation in drug safety trials (4), (5). Polypharmacy may be harmful as it increases the risk of drug interactions, adverse drug reactions and medication non-adherence. Efforts to address this inappropriate polypharmacy have led to the emergence of ‘deprescribing’ which has been described as:

*“the systematic process of identifying and discontinuing drugs in instances in which existing or potential harms outweigh existing or potential benefits within the context of an individual patient’s care goals, current level of functioning, life expectancy, values, and preferences”* (6).

In the context of an increasing primary care workload medication review including deprescribing, may be undertaken by practitioners other than a GP. Legislative changes have allowed nurses and pharmacists to prescribe for conditions within their scope of practice. Clinical Pharmacists (CPs), as experts in medicines, span the full range of prescribed medicines.

We conducted literature searches to identify the evidence regarding:

- the availability and role of CPs in general practice
- strategies for case finding patients at risk of problematic polypharmacy
- pharmacist-led strategies for reducing polypharmacy.

The following report summarises the findings from literature searches performed between September and December 2016.

## Availability

NHS England's General Practice Forward View investment programme committed over £100m in 2016 to support an extra 1,500 CPs to work in General Practice by 2020/21. This is in addition to over 490 CPs already working in general practice as part of a pilot, launched in July 2015. The aim is to have a patient-facing, practice-based pharmacist per 30,000 of the population by 2020 (7).

## Roles

Table 1 summarises the roles of CPs as stated by the Primary Care Pharmacy Association (8).

<b>Prescription management</b> Patients recently discharged from hospital Supporting delivery on QIPP, QOF and enhanced services Repeat prescription reviews	<b>Medicines management</b> Supporting primary health care team and patients to optimise use of medicines Unbiased information on new and existing drugs
<b>Clinical services</b> Medication adherence Reviewing complex medication regimes Triaging and managing common ailments Responding to acute medicine requests Managing & prescribing for long term conditions	<b>Audit and education</b> Overseeing repeat prescription policy National and local medicine related audits Incentive scheme requirements Assistance with CPD

**Table 1. Activities that may be undertaken by a practice based CP**

## Identifying patients at risk of polypharmacy

Evidence for the most appropriate methods to identify people with problematic polypharmacy and evidence for the best tools to support assessment of these patients is lacking. Tools currently in use for assessment include the updated 'Beers' criteria (9) and the Medication Appropriateness Index (MAI) (10). The STOPP/START tool (Screening Tools of Older People Prescriptions / Screening Tool Alert to Right Treatment) has been recommended in NICE Guideline 5 (11) for objective identification of potential medicines-related safety incidents in older people with polypharmacy. However, neither STOPP/START nor equivalent tools have been integrated into any care pathways or protocols in a primary care setting.

Optimising the impact of practice-based pharmacists on outcomes for patients with multimorbidity and problematic polypharmacy could be achieved using a broader combination of risk stratification and case finding rather than a narrow focus on patients with specific conditions.

A systematic review of risk prediction models to predict emergency hospital admission in community-dwelling adults by Wallace et al (12) identified 27 unique models. Of these, the 18 models that were developed using administrative or clinical record data performed markedly better as a group, in validation terms, than those developed using self-report data. However it is of note that some complex non-medical factors are rarely included in predictive risk models (Table 2) (12) (13) including functional status, level of social support or medication taking behaviour.

<b>Relevant factors in current predictive models</b>	<b>Potentially relevant factors not considered in predictive models</b>
Prior health care use	Functional status
Multimorbidity or polypharmacy	Social support
Medical diagnoses or prescribed medications	Medication taking behaviour

**Table 2 Relevant factors associated with effective prediction of emergency hospital admission.**

A number of reports have emphasised that predictive models should be seen as one component of a wider strategy for managing patients with chronic illnesses, and that they should not be used to replace local intelligence or clinical judgement (14) (15).

### Using practice based pharmacists to improve health outcomes

A systematic review and meta-analysis of pharmacist services provided in general practice identified 38 studies (16). Positive effects of pharmacist led interventions were reported in 19 (50%) of these studies and included:

- reduction in blood pressure,
- reduced HbA<sub>1c</sub> levels,
- improved quality of prescribing,
- improved medication adherence,
- resolution of medication related problems.

Only one study in the review (targeting patients in primary care with left ventricular systolic dysfunction) assessed death and hospitalisation as primary outcomes, on which the pharmacist intervention had no effect (17).

### Interventions to improve appropriate polypharmacy in older people

A recent Cochrane systematic review (18) noted the lack of high quality studies investigating interventions to improve polypharmacy in older people. The review did identify the use of screening tools, such as STOPP/START, in combination with:

- pharmaceutical care plan implementation
- medication reviews
- computer-based algorithms
- educational interventions aimed at patients, carers and GPs.

Some studies demonstrated significant reductions in inappropriate prescribing but it was unclear whether such interventions affected clinically important outcomes such as hospital admission and overall quality of life.

### Deprescribing interventions involving pharmacists in the community

This literature search identified 11 deprescribing interventions which were diverse in nature but could be broadly categorised into four areas:

- pharmacist led medication review: 2 of 4 studies reported positive outcomes
- education of patients: 0 of 2 studies reported positive outcomes
- education of nurses and GPs: 2 of 2 studies reported positive outcomes
- pharmacist involvement in multi-disciplinary team meetings: 1 of 3 reported positive outcome

Educational interventions targeting practitioners were effective whilst neither of the patient education interventions were effective. There were otherwise no obvious trends in terms of any particular intervention demonstrating consistently better outcomes.

## Concluding statements

Clinical pharmacists have the potential to support deprescribing and work with other healthcare professionals to ensure appropriate polypharmacy. With the number of CPs set to increase in England by 2020, general practice will have additional skills available to them.

An unedited version of the full report with full reference list is available from [snccg.researchdevelopment@nhs.net](mailto:snccg.researchdevelopment@nhs.net) on request.

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