

REVIEW

Opportunities for collaboration between pharmacists and clinical pharmacologists to support medicines optimisation in the UK

Nina L. Barnett 

London North West Healthcare NHS trust and NHS Specialist Pharmacy Service, Visiting professor, Kingston University, London, England

Correspondence

Nina L. Barnett, Consultant Pharmacist, Care of Older People, London North West Healthcare NHS trust and NHS Specialist Pharmacy Service, Visiting professor, Kingston University, London, England.
Email: nina.barnett@nhs.net

Medicines optimisation is a clinician-driven, person-centred ongoing process. Pharmacists and clinical pharmacologists have medicines-related expertise to deliver medication review which optimises clinical and cost-effective use of medication, aligned with patient preferences, contributing to improved health outcomes. There is a large pharmacy workforce, directly accessible to patients, who can provide expert medicines-related care on the high street, and increasingly in general practice and care homes settings. There are a small number of clinical pharmacologists in practice, mainly working in a hospital setting. Potential opportunities for collaboration are extensive, including local initiatives in collaborative education, formulary/medicines management, electronic prescribing, service evaluation, research, direct clinical services as well as strategic planning through the Regional Medicines Optimisation Committees. Pharmacists and clinical pharmacologists have complementary skill sets and through acknowledging the differences in their approaches and valuing their unique skills, health services can ensure that patients are signposted to appropriate services.

KEYWORDS

clinical pharmacy, clinical pharmacology, pharmacy, polypharmacy, prescribing

1 | MEDICINES OPTIMISATION

Medicines optimisation has been variously defined by National Institute of Health and Clinical Excellence (UK), Royal Pharmaceutical Society (Great Britain) and National Health Service (NHS) England¹⁻³ as involving medication review to optimise clinical and cost effective use of medication, in line with patient preferences, to contribute to improved health outcomes. It is a clinician-driven, person-centred ongoing process supporting patients in the safe, effective medicines use, to facilitate getting the most from the medicines they choose to take. The agenda is huge and requires input from different health care professions. Medicines optimisation is the responsibility of all clinical professionals involved in improving the health of patients through medicines. Thus far, the agenda has been driven by pharmacists, clinical pharmacologists and geriatricians as well as some general practitioners

who have all led the way in both identifying patients at risk of preventable medicines-related problems and undertaking medication review to reduce this risk. This involves understanding the evidence for the effectiveness, risks and benefits of prescribing (starting) and deprescribing (stopping) medicines in relation to individual patients as well as at a population level. This aligns with the definition proposed by Sackett et al⁴ in 1996, which describes evidence-based medicine as combining the best available research evidence and the patient's views, goals, wishes and circumstances, using clinical judgement to agree on an appropriate way forward for medication use.

2 | WORKFORCE

The pharmacy workforce is ideally placed to support medicines optimisation in this way, using both the evidence base and person-centred

skills. In 2008, approximately 70% of the workforce (Table 1) was located in the community, where patients have direct access, without appointments, to expert health professionals in medicines-related care on the high street (see Table 1).

The demographic is changing and pharmacists are now being deployed into new areas of practice, including general practice and care homes. Following a successful pilot programme, 491 pharmacists began working in general practice. The General Practice Forward View⁵ committed over £100 million to support an extra 1500 clinical pharmacists to work in general practice by 2020/2021.⁶ Many of these pharmacists are already in place, running medicines optimisation clinics in general practice and in specific therapeutic areas. Additionally, there is much work being undertaken to improve medicines-related support for people in care homes, with 240 new clinical pharmacy professionals being recruited to work in care homes,⁷ trained through a national programme.

Pharmacists in the community are directly available to patients without appointment on the high street. In addition, there are a smaller number of specialist pharmacists and consultant pharmacists working across primary and secondary care. A recent UK publication, known as the NHS long-term plan,⁸ has further developed opportunities for pharmacists to contribute to medicines optimisation. This includes increasing the number of clinical pharmacists in primary care networks supporting general practitioners and highlighting the continuing role of community pharmacists in supporting prevention.

However, pharmacists are not the only health care professionals actively involved in medicines optimisation. Other clinicians include consultants such as internists (general physicians), geriatricians and clinical pharmacologists. Given the difference in skillset between pharmacists and their medical peers (clinical pharmacologists), it is important for both professions to recognise where pharmacists skills can complement those of clinical pharmacologists, and to identify where the combined skills of others involved in medicine optimisation, such as geriatricians, can contribute to this agenda. The large difference in workforce numbers between the two professions is also significant, with 52 000 registered pharmacists in Great Britain

(in 2016) and 136 registered clinical pharmacologists (in 2017). In relation to the clinical pharmacology workforce, there are currently a small number of clinical pharmacologists in practice, with the Royal College of Physicians census dashboard⁹ indicating 94 consultants and 42 trainees. The consultant workforce has expanded over the last 15 years from approximately 60 in 2004 to the current 94. Of the 42 trainees across the UK, there are also clinical pharmacology/therapeutics academic clinical fellows and clinical lecturers in the specialty, encouraged by this speciality as a theme for the National Institute of Health Research in its competition bids for academic posts. For example, in London, there are 3 lecturers and 7 academic clinical fellows, in addition to the NHS-funded clinical pharmacologist posts.¹⁰

Despite the large difference in workforce numbers, both professions are active in virtually all settings where pharmaceutical care is provided such as hospitals, nursing homes, general practice settings and communities. Medicines optimisation at the level of the individual patient is undertaken by both professions and in hospital settings, medicines optimisation committees are often chaired by a clinical pharmacologist (where available) and co-chaired by a pharmacist. As multidisciplinary, cross-sector and interface team working increases, this may result in closer working relationships between clinical pharmacologists and pharmacists, particularly in general practice, which could positively contribute to medicines-related care for the most complex patients requiring medication review.

3 | COLLABORATION

Given that both pharmacists and clinical pharmacologists focus on maximising the benefit and minimising harm from medication, collaboration between professions would seem a natural pairing to promote medicines optimisation in a variety of settings. However, thus far, joint working is not yet commonly found in clinical settings. A systematic review of medication review identified pharmacist-led interventions¹¹ and a recent evaluation discusses the potential impact of medication review in general practice.¹² However there is little current evidence for the involvement of clinical pharmacologists, despite the fact that clinical pharmacologists play an essential part in medicines optimisation. Acknowledging the size of the medicines optimisation challenge, it would be prudent to consider all suitably skilled clinical not only as contributors but also as collaborators in this work (Table 2).

Potential opportunities for collaboration are extensive, including initiatives in collaborative education, formulary/medicines management, electronic prescribing, service evaluation and research as well as clinical services. One example of this is the work at University College London, University College London Hospital and North Central London. Future opportunities can make use of technological advances to offer opportunities for remote consultations both between professionals (pharmacists and clinical pharmacologists who are not co-located).

TABLE 1 Proportion of Great Britain pharmacist workforce by sector (2008)

Sector	Proportion of 2008 workforce*
Community	71%
Hospital	21%
Primary care	7%
Industry	4%
Academia	3%
Other	4%

Source: Pharmacy Workforce Census 2008 (Royal Pharmaceutical Society GB, 2009)

*Total is >100% because some respondents worked in more than one sector.

TABLE 2 Examples of collaborative working between pharmacists and clinical pharmacologists

Education—medical and pharmacy undergraduate students have been participating in integrated workshops at University College London. Pharmacists and clinical pharmacologists have collaborated to deliver innovative teaching methods, some of which become routine practice outside the university environment, for example, prescribing assessments and fitness to practice sessions. Clinical pharmacologists have also acted as designated medical practitioners for many of the pharmacists undertaking independent prescribing courses.

Formulary and medicines management—University College London Hospital and North Central London formulary/drug and therapeutics committees are joined within the North Central London sustainability and transformation plan footprint. They are run and managed collaboratively between clinical pharmacologists and pharmacists. The chairs of both committees are clinical pharmacologists, and the supporting team are pharmacists. Juniors from both professions are involved in reviewing and presenting the evidence bases for applications.

Prescribing technology—the project to procure, develop, implement and electronic prescribing and administration technology was led by pharmacy and supported by clinical pharmacologists who provided input to weekly team meetings, and the monthly project board meetings. The project and rollout took 4 years and collaborative working has continued towards implementing a total electronic health record system to replace all electronic systems across the organisation.

Audit, service evaluation and research—a Centre for Medicines Optimisation Research and Education has been established with work streams involving collaborations between pharmacists and clinical pharmacologists. The board includes pharmacists and clinical pharmacologists, along with other academics and clinicians.

Clinical—clinical pharmacologists and pharmacists are working together to explore the potential for a joint pharmacist/clinical pharmacologist polypharmacy and de-prescribing clinic. While this is currently in the feasibility and proof-of-concept pilot phase, the demand for this is supported by enthusiasm from general practitioners (GPs), it is expected that this will be a long-term venture towards shared responsibility for medicines optimisation.

Personal communication: R. Offord, 16 August 2018

4 | HOW CAN REGIONAL MEDICINES OPTIMISATION COMMITTEES SUPPORT COLLABORATION?

There are 4 Regional Medicines Optimisation Committees (RMOCs) set up by NHS England to maximise the opportunity for collaboration in relation to all areas of medicines optimisation. The RMOCs focus on areas of healthcare where there is unwarranted variation which could

benefit from sharing of best practice, such as polypharmacy, care homes, use of biosimilar medicines and antimicrobial stewardship. The RMOCs aim to¹³:

- Identify best practice and evidence
- Establish standards and metrics
- Highlight examples of good practice
- Support monitoring/governance

The 4 RMOCs across England have identified areas of specific focus, with London focussing on polypharmacy. The chair and vice chair of the subgroup are a pharmacist and clinical pharmacologist. It is intended that good practice in medicines optimisation around polypharmacy will be disseminated through both professions to optimise clinical skills mix for patient benefit in this area.

5 | CHALLENGES AND ENABLERS

With any agenda as large as polypharmacy, there are challenges as well as enablers to moving this work forward. Organisational and Sustainability and Transformation Partnership priorities can promote or preclude establishment of polypharmacy reviews. The challenge of both identifying who benefits most from complex reviews and having the appropriate amount of time to undertake polypharmacy consultations is common to all health professionals involved in medicines optimisation, as dedicated time is required for complex reviews. Individual clinicians, clinical pharmacologists, geriatricians and pharmacists alike, have access to excellent tools to support medicines optimisation, such as the NHS Scotland polypharmacy tool,¹⁴ anticholinergic burden¹⁵ and the NHS Business Services Authority polypharmacy metrics¹⁶; however, there are challenges to embedding the use of these tools in practice. Patients have specific views regarding polypharmacy and medication review: some may wish to reduce their medicines, some may not, and some may consider reviews as cost-saving measures and reject them. For medicines optimisation consultations around polypharmacy to be effective, it will require conversations with patients to elicit their agenda: what matters to them. This needs to be combined with an easily accessible, relevant evidence base to support practitioners in using their clinical judgement to optimise medicines in person-centred way.

TABLE 3 Complexity of medicines optimisation consultations with practitioner examples

What	When (post-qualification)	Who
Level 1: Basic	Year 1	Foundation practitioners (doctors and independent prescribers)
Level 2: Intermediate	Year 2 to 5	Doctors and independent prescribers expanding their practice
Level 3: Advanced	Year 5 to 9	Specialist practitioners e.g. Specialist registrars, senior pharmacists
Level 4: Very advanced	Years 10 onwards	Consultant pharmacists, consultant clinical pharmacologist, experienced, expert clinical pharmacists, some GPs, general medicine care of the elderly consultants

Courtesy of Prof. E. Baker. Personal communication (May 2018)

6 | MOVING FORWARD

By identifying areas of good practice, evidence and metrics, the RMOs can support embedding of effective medicines optimisation in the area of polypharmacy, using the skills of the most appropriate health care professionals. Both pharmacists and clinical pharmacologists can respond to the need for generalist clinicians to do this (working across all disease areas with medicines) as well as provide expert practice (expertise in use of medicines). This may be new territory for some practitioners, but both professions are aware that their traditional roles are changing and that this is an opportunity not to be missed for both professionals and for patient benefit.

By setting minimum standards for polypharmacy management and minimum competencies for practitioners, the public will be assured that medicines optimisation consultations will be undertaken by the most suitable person for their needs. The RMO can work with commissioners to develop contractual levers to encourage polypharmacy activity and encourage use of validated measurable outcomes, such as NHS Business Services Authority polypharmacy metrics. The RMO has the opportunity to be flexible about which tool or method is chosen to undertake reviews without compromising the quality or validity of the metrics.

It is up to both professions to be flexible about who undertakes specific activities, ensuring the competencies of all professional groups. Table 3 illustrates how polypharmacy work could be shared according to complexity of cases and competencies of practitioners.

7 | SUMMARY

Pharmacists and clinical pharmacologists have complementary skill sets. By acknowledging the differences in their approaches and valuing their unique skills, health services can ensure that patients are signposted to appropriate services. Both professions have the opportunity to work together to share their professional experiences of patient care and medication review, learn from each other to deliver medicines optimisation consistently, widely and effectively for patient benefit.

COMPETING INTERESTS

There are no competing interests to declare.

ORCID

Nina L. Barnett  <https://orcid.org/0000-0003-3610-4816>

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